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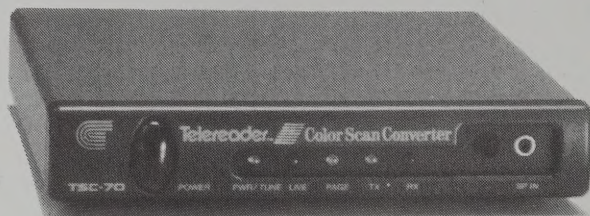
Amateur Television Quarterly



GOTTA SIGN WITH YOU ED, I CAN'T SEE THE
MONITOR--- THE WIFE'S RELATIVES ARE WAITING
FOR ME TO BRING UP THE SIMPSONS

NEW PUBLISHER! - See Inside
ATVQ WEB SITE
W6ORGy NOTES

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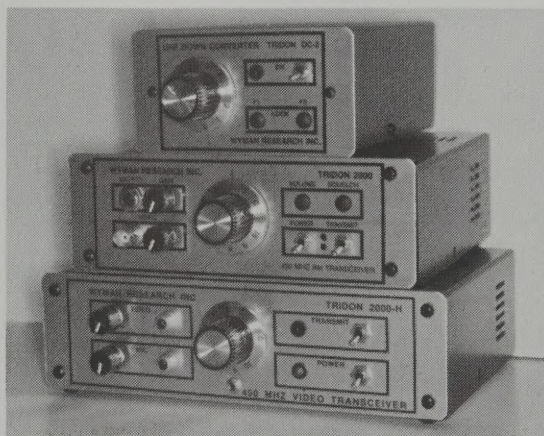
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Publisher/Editor
Gene Harlan - WB9MMM

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Make Mine Margarita's

Gene Harlan - WB9MMM

I am happy to announce that Harlan Technologies is now the publisher of Amateur Television Quarterly. I look forward to providing interesting material (provided by many of you) in the coming issues.

I would like to thank Henry Ruh for all the time and effort that he has put into producing ATVQ in the past. I know that it can be very hard when you have not only a full time job, but one in which much overtime is put in as well. I know Henry won't be at a loss for things to do, and might even find time for the hobby of ham radio again.

Also, I want to thank each of you for your support of the publication throughout the years. Without your support (advertisers and subscribers), ATVQ could not exist. We need to work together to promote amateur television, because if we don't, no one else will.

I am working on ideas for what I visualize the future of ATVQ to be, and welcome your ideas, articles, and comments. I do hope to have a few more SSTV articles as well as fast scan. Also, ATV repeater clubs/organizations that have a web site, will be linked from the ATV WEB SITE mentioned on the next page. If you can provide a link back, I would appreciate your doing so.

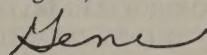
Currently, the issue I pick up on is the Summer 97 issue (this issue) as the postmaster says I cannot skip an issue. I expect to have this issue in the mail the second week of November. The next issue will be mailed the second week of December. At that point, we will be back on track for the WINTER 98 issue going to the printer on January 15th. With that in mind, while I have some material that Henry gave me, I am going to need many more articles. So, keep them coming. Let me know how you use ATV in your area. Please send pictures when possible, so everyone can see and understand easily. Articles can be sent via email or snail mail. See the authors guide on the next page if you are interested in writing for ATVQ.

Types of articles that I will push for are technical tutorials, building projects, beginners articles, info for the experts, using ATV in balloons or model aircraft, ATV in parades, tell us how you get the young involved (schools?), SSTV's different modes, SSTV net activity, ATV net activity, ATV add on equipment (special effects?? what's used and how), programs the the computer that you use with ATV or SSTV, and so forth. I love pictures and drawings. Have you had a great club meeting demonstration that you would like to share? Send pictures with the story. Well, I think you get the idea. I've always enjoyed reading ATVQ and hope that others will say the same in a few years!

If your subscription is due, please help me out by sending in your renewal as soon as possible. This will help with keeping the costs down on our end. You may check the expiration date on the label. This date indicates the last issue that you will receive.

Thanks again for everything. I'm looking forward to working with you!

Regards,



Gene Harlan

WEB ATV

No other mode has done this before! On our web site, provided courtesy of Dave Stevens and Fred Juch of HATS, we have a complete cumulative index (from Vol 1 #1 THRU Vol 10 #1 issue - 1988-1997) and ATVQ just added a listing of 5500 ATV'ers. What other mode has a complete listing of users on its WEB page? The listing is by state/zip, so you can find someone in your area by zip code search, or city/state search. But wait there's more! In order to let any new ATV'er get a mother lode of information, I want to add pages for Repeater listings, and a page for Club listings. Now a new ATV'er can find an ATV club or ATV repeater in his/her area, or find that there is none and put one on! Add your local ATV roster or ATV club roster or make changes or corrections via e-mail and we will update the listings monthly or as changes require. I did not list non US ATV'ers because my list would be very incomplete. Please feel free to contribute non US ATV'ers, clubs, and repeaters so this can be an international ATV site. The forms are on the WEB SITE, just copy, fill in the blanks, and e-mail to

ATVQ@AOL.COM.

If you link to the ATV pages, and provide us info, we will link back to your site. In a short time, anyone browsing an ATV site will be led to the mother load of info! Please go to the INTERNET site now and fill out the form, pass it around, or copy it from the next 2 pages of this issue, and e-mail or send it to me. Updates to put your goodies into a database for a web page will happen about once a month. If I can keep this mostly e-mail/electronic it will be a lot easier on me, and faster, and we can get the site built quicker. This is a non commercial site, only for the use of ATV'ers to find other ATV'ers. Commercial use of the information is forbidden.

HTTP://www.stevens.com/ATVQ/

73 Henry KB9FO

AUTHORS GUIDE

Preferred method of receiving articles is from **Microsoft Word**, however **Wordperfect** is OK too. Next preference would be **ASCII text**, followed by **typewritten** or **hand written** (clearly). Diagrams or pictures (B&W or Color) can be sent in hard copy, or if you scan them in, save to PCX or JPG formats (actually I can read about anything). If you send a computer disk, make sure it is PC (not MAC) format.

Articles can be sent to:

ATVQ

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Rockford, IL 61108

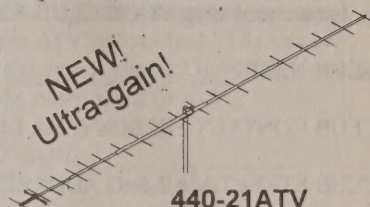
or email to: **atvq@aol.com**

<http://www.cris.com/~gharlan>

M²

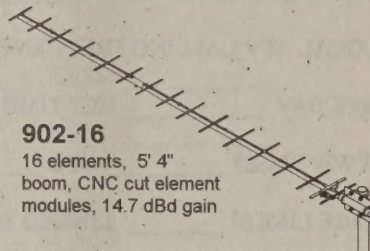
YOUR ATV ANTENNA SOURCE ...

NEW!
Ultra-gain!



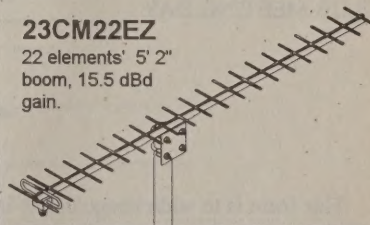
440-21ATV

all-weather replacement for FO22,
sealed driven element, 14' 5" tapered boom
(1-1/2", 1-1/4", 1"), >15.9 dBd gain.



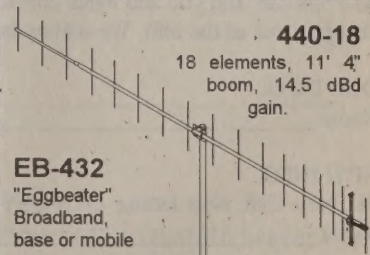
902-16

16 elements, 5' 4"
boom, CNC cut element
modules, 14.7 dBd gain



23CM22EZ

22 elements, 5' 2"
boom, 15.5 dBd
gain.



440-18

18 elements, 11' 4"
boom, 14.5 dBd
gain.

EB-432

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WEB ATV CLUB LISTINGS

In order to put together a WEB page listing of ATV clubs, we need to COLLECT info on your local ATV club! Then, check our WEB site as we will post the info monthly as the information comes in, or is updated. I will make this form a regular feature of ATVQ so the web site is as up to date as YOU make it! Remember the site is noncommercial, we are not making \$\$ from this activity, but are providing YOUR CLUB with a means to be listed in a common directory that anyone can search to find YOU.

CLUB NAME: _____

CLUB CONTACT PERSON (First, Last, Call) _____

CLUB STREET/MAILING ADDRESS: _____

CITY: STATE ZIP _____

CONTACT PHONE NUMBER: _____

LOCAL ATV CALLING FREQUENCY (intercom channel) _____ Repeater or simplex? _____

NET DAY _____ NET TIME _____ NET FREQUENCY _____

WWW PAGE? _____ URL _____

PAGE LINKS? _____ LINKED TO ATVQ ATV SITE? _____

CLUB MEETING DAY _____ TIME _____ PLACE _____

ATV'ers Roster

This form is to add/change/delete information from the ATV roster at the ATVQ ATV WEB site. Again, this is so that other ATV'ers can find you and make contact, have QSO's, share info in your area. Check the web site first, then if you need to make a change, send us the info. We will update the listing monthly or as changes require.

OLD INFO:

Name _____ Call _____ City _____ St _____ zip _____

NEW INFO

SK, New Call, New listing, QTH QSY Inactive/delete Spell check

Name _____ Cali _____ City _____ St _____ zip _____

For questions/confirmation only: Mailing address: _____ Phone _____

PLEASE PRINT OR TYPE SO I CAN READ IT AND EITHER SCAN OR COPY IT TO WEB PAGE!!! THANKS Mail or E-Mail to:

WEB ATV INFO, 5931 Alma Dr., Rockford, IL 61108.

E-mail: ATVQ@aol.com

WEB ATV

REPEATER LISTINGS

As with the club listings, this WEB PAGE will provide ATV repeater info. I will update the list as the information is sent in, and it will be posted to the web site monthly or as changes require. This should be only listings of actual operating repeaters, not vapor ware or might be's. Again, the purpose is to promote YOUR REPEATER, at our site where new ATV'ers can find YOU and get active in your area. Anyone not finding a repeater listing in your area, will likely assume that the area is simplex only. This can also serve notice to other band users that your ATV repeater is active, and the frequencies are in use, coordinated or not!

REPEATER CALL SIGN (ID NOT SPONSOR) _____ SPONSOR CALL SIGN _____

SPONSOR (Club or individual) _____

REPEATER LOCATION: CITY _____ STATE _____

TOWER/BUILDING NAME _____

INPUT FREQUENCY _____ U or L VSB? _____ POLARITY _____ ACCESS _____

SECONDARY INPUT _____ U or L VSB? _____ POLARITY _____ ACCESS _____

THIRD INPUT _____ POLARITY _____ ACCESS _____

Separate voice input? FREQUENCY _____ POLARITY ACCESS _____

Separate voice repeater? FREQUENCY _____ PL? _____

OUTPUT FREQUENCY _____ VSB? _____ POLARITY _____ ERP _____

SECONDARY OUTPUT _____ VSB? _____ POLARITY _____ ERP _____

OMNI OR DIRECTIONAL _____ If directional, what is coverage _____

WX RADAR? _____ NASA? _____ Link to other RPT? _____

User controls _____ Contact for user control info _____

PLEASE PRINT OR TYPE SO I CAN READ IT AND EITHER SCAN OR COPY IT TO WEB PAGE!!! THANKS Mail or E-Mail to:

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E-mail ATVQ@AOL.COM

OFFICIAL RECORDING AND RECOGNITION OF AMATEUR TELEVISION DISTANCE RECORDS

by Michel Vonlanthen, HB9AFO, President, Swiss ATV

Foreword by John Jaminet, W3HMS

When Michel asked me to translate his proposal for the Swiss ATV Home Page, as well as for several amateur radio magazines in the USA and Europe, I was struck by the unique idea of recording current AND prior records. Thus, the radio amateur TV community will have complete long-term visibility of what has been possible in terms of conditions and equipment. The well-known Swiss talent for precision and world class organizations make the Swiss ATV Association ideally placed to serve the TV hams of the world. 73 de W3HMS

In the domain of the television amateur, the records of distance have not been, until now, recorded and recognized officially by a publication and no organization has maintained the list.

To fill this gap, the SWISS ATV proposes to function as the organ of recording and recognition. To do this, it will hold the composite list of accepted records and stay current in their availability and publication. Stated concretely, the records will be maintained current at all times based upon the data solicited by the Swiss ATV and as submitted by those claiming a new record.

In order to give an indication of the historical evolution of each record, the old records will be maintained on the list in order to show the qualitative progress of each new performance.

It is clear that the goal of a record is not self congratulation but to inform the others interested in the progress achieved. The technical information that we hope to see there will permit equally to give order and scale to that which is possible to do with any given material.

One could debate the act of recording and recognizing these records for it is clear that those who put forth the effort to go further and further "cut the grass" under the feet of those who use the normal means by removing, in some way, their illusions of high achievement.

It is not necessary to use a lure, however, technical advances move forward with ceasing and those who are at the point of the technical advance are not there as a result of being touched by a magic wand.

To illustrate by an example, Serge, FIJSR and myself have perfected our equipment and our expertise in ATV operations on the microwave frequencies during several long years. Concerning myself, HB9AFO, I started on 10 GHz in 1988 and in that year, I made my first ATV QSO on this band. This makes, therefore, 9 years that I have perfected my equipment without ceasing. It is paradoxical but I made my first QSO on 10 GHz on ATV with myself as I was the only station active at that epoch. I have continued with wide-band FM with my bud-

dies of the RAV Club, Radio Amateurs Vaudois, but afterwards all my activities are concentrated on ATV and uniquely on 10 GHZ. Our record has not been, therefore, the fruit of an accident and we do not count on, FIJSR and I, the tests and portable operations to do anything but harden us for future battles. It is the same for all those who construct their own equipment and who attempt their QSOs who feel as trailblazers.

A record can be the fruit of an accident, a great "skip" of the propagation and this should encourage the newcomers, that, finally, all is possible. That which is important is not however to beat the record and become the "strongest" but to learn and to forge an experience, to explore the unknown routes, and, at the end of the count to have advanced the technique. Following the example of some big discoveries, our modest records participate in the big adventure of humanity.

To end on a practical note, the word "record" is quasi-magic for the media can contribute to create for us a good media image, specially useful at the time of negotiations of all sorts.

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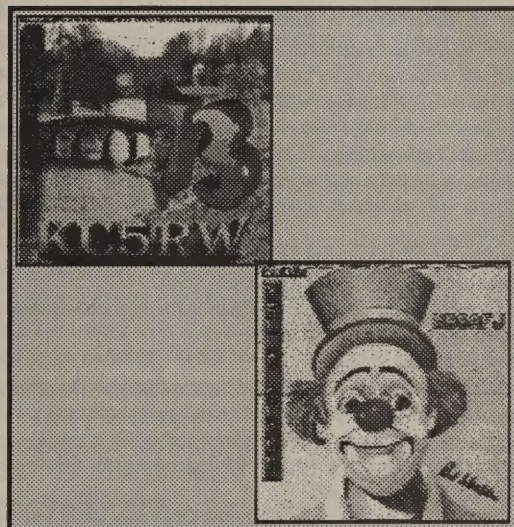
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left image

Easy 3D SSTV

right image

Now you can use Blaster SSTV with the QuickCam camera to produce your own 3D pictures for SSTV. Just start the camera, aim for the left eye picture, press the space bar, slide the camera 2 1/2" to the right for the right eye picture, and press the space bar again. Blaster SSTV will then produce the RED/BLUE 3D image for you. **It's so easy!**

Also NEW - Now you can adjust for the inaccuracy of the Sound Card. This allows better transmit and receive with all the various types of Sound Cards that are available.

Start Today
SSTV IS FUN !
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10 May 97 New ATV 10 GHz World Distance Record

Michel Vonlanthen, HB9AFO

The SWISS ATV will stay up with publication of new records in the maximum of media.

How to establish a new record ?

If you have made an ATV QSO which seems to you to be a record, tell us as rapidly as possible as much information as you can, in order that this performance will not be just some numbers but will constitute a data base of the historical progression of our technique. Among other things we would like to receive:

1. Names, call letters, and complete addresses of all stations claiming the record with telephone numbers and any INTERNET EMAIL addresses.
2. Band on which was made the ATV QSO.
3. Distance between the two stations in QSO.
4. Geographic positions of the two stations with coordinates and/or Grid Squares.
5. Altitude of each station.
6. Particular conditions which could have influenced the propagation, optical visibility, signal path over the sea, signal path over a cliff, etc.
7. Weather conditions on the path between the two stations.
8. Reports exchanged, e.g. P1, P3, P5.....good sound, some color, excellent color, QSB present, etc.
9. Exact date and time during which the QSO was made and the duration.
10. Photos, VCR recordings, sound recording, testimony of witnesses, etc. as may be available.

Do send us the photos or video images which is a "must". Send a brief article describing what went on. Thus we, the ATV community, can all profit by the publication of the record details in our journals, magazines, and on the Swiss ATV WWW Home Page on the INTERNET.

Send the information in English, French, German, or Italian to the address at the end of this article.

The following was received by W3HMS from Michel Vonlanthen, HB9AFO via the Swiss ATV Home Page on the INTERNET.

Before sunset on 3 May 1997, and after one year of preparation, Serge Riviere, FIJSR/Portable and Michel Vonlanthen, EAS/HB9AFO/Portable have increased their 10 GHz ATV world distance world record to 701 km or 434.6 miles !

The QSO was made between Mt. Caume (JN23WE) at an altitude of 2452 feet near Toulon, France on the Mediterranean to Mt. Rates (IM98XR) at an altitude of 2779 feet near Alicante, Spain.

Signals up to P5 in color were received at both ends with heavy QSB due to variable meteorological conditions in the path which included 445 km or 271 miles of non-optical path.

Serge, FIJSR used 110 Watts into a 24 inch offset parabolic antenna and Michel, HB9AFO used 1 Watt into a 40 inch prime focus parabolic antenna. Additionally, Michel used a narrow bandwidth ATV

receiver. The record breaking QSO was made on the fourth day, after 3 days of unsuccessful attempts, and contacts were made in each direction. Coordination was made via phone, 80 and 40 meters bands, and also on 144 MHz when this was possible.

The success of this expedition can be attributed to 4 parameters as a minimum:

1. The equipment was perfectly tested equipment during the months preceding the expedition and the two teams had exact knowledge of the frequency and azimuth of the other station. This is a prime requirement for a non-optical path.

2. Before the expedition assistance and with the meticulous preparation by Jean-Pierre Mutero, FIAAM and his son Lionel for planning the contacts, arranging phone skeds, determining the path, and calculation of the azimuth and distances, etc.

3. By incorporation of local radio amateurs in both teams. With FIJSR: HB9DLH helped with the video and phone contacts on 40/80 meters and 144 MHz and F1CH helped with local assistance and the research for high points. With HB9AFO, HB9ADJ helped with the phone contacts on 144 MHz and F6GBQ helped with contacts on 40/80m, /1200/2300 MHz, EA5DFV of Spain helped with the local assistance and in the research for high points and F6BCF for geographic localization with GPS.

4. And of course, the chance to have good propagation and good meteorological conditions. A tip of the hat especially to Remy, HB9DLH, who at 72 years of age did not hesitate to go with Serge, FIJSR in this physically hard expedition. Three generations were on the sites: HB9DLH, HB9AFO, and FIJSR!

The second goal of this expedition was to offer the possibility to local hams to make ATV QSOs on 10 and 24 GHz. Several teams took this occasion and they traveled to mountains to contact us in France: FIANY on SSB, F1EYB, F1UNA, F5AD/F1FCO, F5CAU/F6BVA, F5DCB, F6EOE, F6FAT, and HB9RXV) and EA5YB in Spain.

After having received all the photos and videos, a detailed description of operations will be written for the SWISS ATV NEWS, B5+ of the French ANTA and some specialized magazines.

It is to be noted that the preparation of this expedition was done via INTERNET on the Swiss ATV Home Page:

<http://www.cmo.ch/swissatv>

and E-mail messages to HB9AFO at:

mvonlanthen@vtx.ch

Michel Vonlanthen, HB9AFO
SWISS ATV
PO BOX 301
CH-1024 Ecublens, Switzerland

Digital TV Today

Update - Digital TV is Here....sort of

Henry KB9FO

For those of us on the frontier of DTV, the decisions are getting harder and harder. The much ballyhooed HDTV (High definitions Digital TV) may not been seen except in rare instances. More likely, we will be watching NTSC resolution 16:9 format DTV (Digital TV).

For those of you that now own one of the DBS satellite receive systems, you already have Digital TV. These little 18" dish antenna systems use a highly compressed MPEG2 system to convert a regular NTSC signal into blazing bits. If you have owned one for long you may have also noticed a few "bugs" in the system. First, the two main purveyors of DBS/DTV use different encoding systems, so if you bought one system, you will never be able to watch something on the other's system without buying another system! Second, the C/N ratio on an 18" and even the upgrade 2 foot dish is very low. Whenever it rains here in Chicago, the reception goes away. Since it is digital, it doesn't fade into noise as NTSC does, its a now you see it, now you don't system. Third, the signal is so compressed, you can frequently observe the artifacts of compression as reduced definition, or blocks of picture in the wrong space, or jerky motion. Fourth, if you have a C band TVRO system, you are watching the same signals from HBO, ESPN, etc., that the DBS people are watching, which they then convert to compressed digital signals to send back up to the KuA band satellites to beam back to you. In other words, you are getting second hand video which has had most of its information removed for DBS.

Being a MPEG system, means they transmit only about 2 frames per second, and a few clues of the other frames for the number crunching processor to use to guess what was in the other 26 frames. If you get too many bit errors (a high BER) the system freezes until the next de-codeable full frame. Ground based DTV will do the same.

For the few that have invested in systems which also offer a digital VCR, you may have noticed a lack of digital input/output jacks, and you cannot dupe a digital video tape except to an identical digital tape machine, and the signal used to make the copy is specially encoded so you can't make a daisy chain to make more copies, and you cannot copy between systems (3 so far).

The lack of a digital input or output (except for the proprietary dub jack on one model) also means you cannot dub in digital form, rented movies, or from another DBS systems digital output. There is even encryption to track the source of the recording, and to allow future "kill dates" on recordings, so that after a certain date, you can't play back the digital video tape at all! Supposedly this was so that you could time shift — record a movie overnight, or during the day to watch the next day, or an

the weekend, but after a set time period, poof, it was gone to prevent you from storing the movie for viewing next month or next year. No home movie or TV show libraries allowed. Imagine archiving the last episodes of a favorite program to enjoy years later only to find that the tape is no longer playable because the date expired! I enjoy my various anniversary edition shows of Johnny Carson and other classic TV shows.

Us over the air broadcasters still don't know exactly how to make a buck to pay for the DTV operations. The original press all hailed a new era of super high definition pictures, wide theater screens, surround sound and 'the experience of a live performance.' Well, this may come to pass for huge events, Superbowl, World Series, Indy 500, NBA playoffs and those sorts of things. Movies may be in wide screen, but not necessarily in high definition. The rest of the programming, will likely be converted from existing NTSC videos, converted for DTV transmission.

Contrary to popular belief, the FCC did not create the DTV channels for broadcasters to use for the exclusive transmission of HDTV (High Definition Digital TV). The FCC rules say exactly the following:

- 1 A station must transmit as many hours on DTV as they transmit on NTSC.
- 2 A station must transmit an equivalent resolution signal to NTSC.
- 3 A station may keep their NTSC channel as long as there are still either 15% or a significant viewer ship that only have NTSC receivers.
- 4 Only stations with NTSC signals currently on the "non core channels" must return their NTSC channels to the FCC for auction, except those in item 3. Depending on which memo you read, the non core channels are 2-6 and 60-69, or 26 and 51-69, and even then there are some exceptions. Some stations will change channel twice if they abandon NTSC, first (for example) a move from 69 to 55, then from 55 to a vacated NTSC channel in the "core" channels remaining. Obviously for that to happen the NTSC channel must first be vacated. See 3 above!

There is no requirement that the DTV channel carry the same programs as the NTSC channel. There is no requirement that you even program the channel yourself. You could sell or lease the DTV channel to someone else, or program it entirely differently than your NTSC channel.

There is no requirement to transmit HDTV. Many of the networks are now looking at sending not 1 but 4 or more DTV signals (as many as they can fit). For example. ABC/ Capacities/ Disney own many cable channels as well as ABC TV network. Likewise the other networks. ABC/Disney could

decide to stop or to simulcast their cable channels to get a bigger audience, or take the cable signal away from cable companies entirely and put it on the air to gain more direct revenue, and after decades of battles, stick it to cable as cable has stuck it to broadcasters. ESPN, ESPN 2, Disney E/W could just as easily be over the air pay or commercial or a combo of pay/commercial channels on DTV as they now are on cable. Since there would be no local cable franchise owner collecting much of the subscription price, more funds flow directly to the program producer. That means more profit, and the ability to create more programs to sell with the new found flood of greenbacks. Being digital, the faucet to each subscriber/viewer could be turned on/off at will.

As for the really big events, why put them on free TV, when you can sell the event via PAY TV, and still get the \$1 a minute commercial spots. Movies have already taken this route by going from theater to pay per view and then to subscription channels, and then lastly to free channels and rental. The number cruncher's are hearing the cash drawer get louder and louder. After all, there is almost no increase in cost to air Super Bowl XXX on an NTSC channel vs NTSC and 4 DTV channels, or in HDTV as one channel as a pay per view program. With the digital recorders, they could even program the tape so that you would have to pay again to replay your own recorded copy! Wait till Bill Gates hears of that! it would be like having to pay to use your computer operating system (DOS/Windows) each time you boot up!

As for how long will NTSC be around? It took Britain over 20 years to convert from 405 line BLACK AND WHITE to 625 line color! The cost of DTV receivers and even DTV converter boxes will take a few years to come down, and even then there are tens of millions of people who's fixed income from Social Security or welfare will prevent them from replacing the 7 TV sets they now own. (The average home has more TV sets than telephones.) In Britain the government finally bought TV sets for those who still had not converted. Will a DTV set be our next governmental entitlement?

DTV receivers are supposed to hit the market next summer/fall just in time for Christmas 1998. Thus the FCC has 'volunteered' the major market network station to be on the air in time for the DTV roll-out. So far, it looks like only a few will make it. Issues of where to locate new TV antennas, rental agreements, site acquisition and construction of really big towers is slowing the process in most markets. You just don't go to the building permit department plunk down %100 and wall< away with the permit to build a 20 acre, 50,000 sq ft building and 32 antenna, 2000 foot tall 16 million pound \$15,000,000 tower in Downtown anywhere.. It may take a while...

ATV in Montana

Bill Erhardt KA7YAO Helena, Montana

Our club will be putting an ATV repeater on Hogback mountain (8000 feet) about 20 miles NE of Helena. We ran some tests from the mountain and got P4/5 signals from Bozeman and Great Falls (80 South and North), so looks like we have good coverage for ATVers for at least 100 mile radius.

Repeater is was purchased from club in Ocala, Florida and is presently being upgraded and completely tested. All looks great so far. We are building two 70cm corner reflectors for antennas and they will be ready this week for final testing. I will let you know What's happening with the repeater as it looks like it will be on the mountain and operational in two weeks (before the snow flies hi hi).

We will be operating 421 out 434 and 1.2 GHz in. I will put together a web page in conjunction with the clubs web page with emphasis on ATV in Helena, Montana.

Warren Weldon WSDFU SK

Warren Weldon, WSDFU died in a car crash in Tulsa Oklahoma, 15 Oct, 1997.

Warren was a Ham's ham, always exploring new areas of ham radio and the spectrum. An avid microwave DX'er, home builder and ATV'er, Warren was a pioneer in many areas of ham radio. Warren operated an extensive ham station from a hill top overlooking Tulsa, OK, where he lived his life. He had retired from American Airlines after 44 years of service, having joined them directly after high school. For American he pioneered many areas of non destructive testing, to test engine parts and airframe components for otherwise undetectable faults. Warren built an impressive array of ham gadgets for operations on ATV, SSTV, and VHF, UHF, SHF Microwave DX, a true innovator and pioneer on many ham bands.

In the early 1970's Warren was the first to provide the National Weather Service with a direct video link. The Tulsa weather radar system was antiquated and Warren's vantage point on the north side of the city allowed him to see the many severe storms in the area each year. He constructed a video link to the NWS from his shack on north Osage Ave. His view of the storms and tornados was a valuable public service and was used by the NWS and local TV stations which tuned in regularly.

In 1973, Warren received the first A5 Magazine "Good Image" award for public service for his efforts at storm watching. Shortly thereafter, from a letter of recommendation from A5 Magazine, he received a White House Commendation from President Jimmy Carter for his public service efforts. Warren's efforts were also a source of good ham radio publicity in Tulsa newspapers and TV.

Warren was the Oklahoma link for many DX'ers on ATV, SSB and CW and SSTV. He had created a unique tower elevator so that he could locate his microwave radio equipment at the antennas to eliminate coax losses, yet lower the array and equipment for service, or updates. Warren was always in good spirits, and was always good for a joke. When flying cross country I enjoyed many an airborne ATV QSO with Warren. On one flight where I landed a little low on fuel, he had me pose next to my plane with my cowboy hat on, then sent it to me with the caption, "Would you buy a used plane from this ham?"

Warren seldom missed Dayton Hamvention, and often worked in the various ATV booths, or as he put it, "browsing the flea market for plunder" finding those golden nuggets among the boat anchors to complete another project. But many will miss Warren as a good ham, radio pioneer, husband, dog owner and friend. If there are Hero's in Ham Radio, Warren was one of the first, inspiring many others by his good example.

HALO Rocket Balloon

Bill Brown WB8ELK



The HALO team met at the launch site in Hampstead, NC in the wee hours of Sunday morning, May 11th. It was very cold (frost collected on the equipment) with absolutely no wind. Perfect conditions for a balloon flight! As the rocket crew tested out the payload and command electronics and fueled the rocket with nitrous oxide, the balloon crew unfurled the delicate plastic envelope on the protective ground tarp, attached the Kjome launcher and started the inflation process.

As the sun poked up above the horizon, and with just 30 minutes to go before our

FAA launch window closed, we ran across 2 nearly empty tanks of helium. Concerned that we would not have enough helium in the balloon to lift the rocket payload, we searched Hampstead and nearby Topsail Beach for helium (not an easy task early on Saturday morning). It turned out the local Food Lion store had two tanks they used for party balloons and sold them to us. This saved the day and allowed us to achieve final flight lift. The rocket crew lifted the payload and stretched the lines tight, the fill tube on the balloon was tied off and the call to the FAA went out for imminent lift off. With just 5 minutes to go before the deadline, we released the balloon at 6:59 am EDT and the rockoon headed up smoothly into the still morning sky on its way to the stratosphere.

Spectacular color video of the balloon and the side of the rocket launch tube could be seen in the command tent. The rocket video was viewable on another monitor, but little could be seen due to the protective plastic wrap around the gondola.

The GPS telemetry downlinked via packet radio in APRS format started to get weak after the rockoon exceeded 23,000 feet. The signal faded completely into the noise and we were unable to record any more usable position and altitude

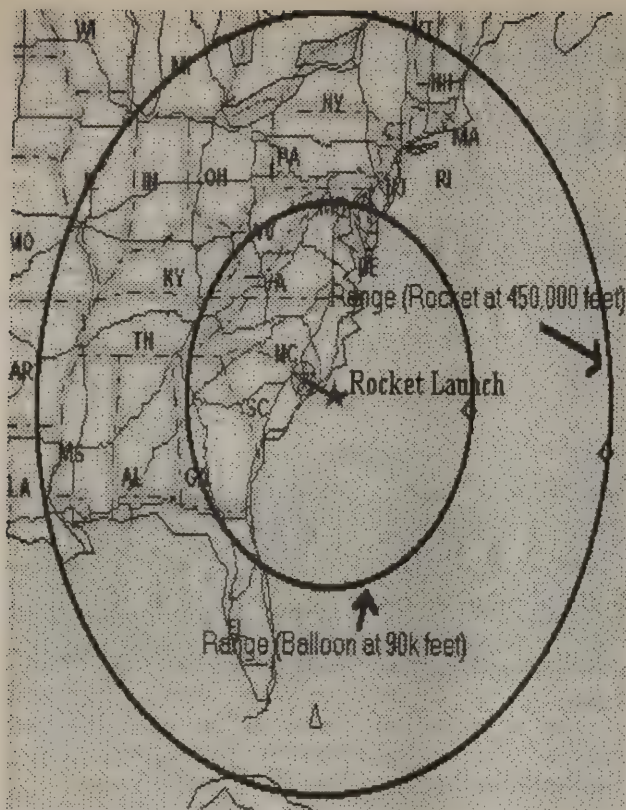


reports from that point onward. We think that the internal antenna for the packet transmitter put most of the radio signal up and down, but very little signal made it towards the horizon as the payload headed out nearly 120 miles out over the Atlantic.

At 8:21 am, we calculated the estimated altitude of the rockoon based on the ascent rate to be around 60,000 feet. I said, "Since we are now above 49,000 feet, the barometric rocket safety switches are now armed and the rocket can be fired at anytime." Of course, we were hoping to reach at least 100,000 feet before firing off the rocket. Just 30 seconds later, I happened to be looking at the video of the balloon envelope and thought that the balloon looked pretty full. Just then, one of the seams tore wide open, dumped out all of its helium and the balloon just folded up into a long streamer of plastic! As the rocket and gondola dropped rapidly, I shouted out to Ed KE4ROC, "Fire that rocket NOW!". We had just over a minute to issue the fire command before the safety switch disarmed the rocket at 49,000 feet.

Ed keyed down the 2 meter transmitter and anxiously entered the firing code via touchtones. Nothing happened...He tried another time...nothing...and then a third (we had only seconds left before the safeties cut in). All of a sudden there was a bright flash and a cloud of smoke and the rocket leaped out of the gondola and off towards space. Bits of plastic tape and the plastic covering shredded off and fluttered past the camera view as the gondola continued its rapid descent. Miraculously, the camera had survived the rocket exhaust blast and continued to work flawlessly until the gondola splashed into the Atlantic Ocean.

We were treated to flashes of video from the rocket for about 30 seconds showing tantalizing views of the curve of the



Radio Coverage:

The inner circle is the viewing area for the 434 Mhz ATV gondola transmitter.

The outer circle is the viewing area for the 1280 Mhz ATV and 441.050 packet transmissions from the rocket at peak altitude.

Earth. Since the rocket was spinning around, the ATV signal fluttered in and out and made it difficult to lock onto a good picture. After that, the video signal ceased and the rocket parachuted down into the Atlantic. We estimate our peak altitude at 38 nautical miles. Both the gondola and the rocket splashed down about 120 miles east of the launchsite and 50 miles from the nearest land. Since the GPS signals were unavailable, we were unable to direct the chase boat to an accurate splashdown location. The rocket and gondola were very small straws in an extremely large haystack and as a result, the chase boat did not recover the payloads.

Although we did not achieve space (defined as 51 nautical miles in altitude), we did set several records: The first amateur launch of a rockoon (rocket launched from a balloon), the highest launch of a hybrid rocket (hybrid referring to the nitrous oxide/asphalt fuel combination), and the highest flying hybrid rocket to date.



The president of HAL5, Greg Allison, holds the HALO rocket just before its first ground flight test.

'98 DAYTON FRIDAY NITE ATV

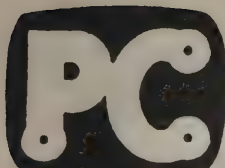
The Fast Scan ATV Party/Meeting will be held on Friday at 7pm. The location will be at the West Carrollton Lions Club at 435 East Main Street, West Carrollton, Ohio which is about 25 min. from the Dayton Hamvention. This event is being sponsored by the ATCO & HATS Fast Scan ATV Clubs. Plan on bringing ATV Video tapes, ATV Club projects or your own ATV project for show and tell. If you get lost call 859-7276 (W. Carrollton Lions Club) For more info contact John Hey at W8STB@concentric.net or 937-859-5294.

Directions. From Dayton head South on I-75, Take West Carrollton exit #47, stay in right lane, pass football field and Jr. High, At traffic light turn right onto Cedar Street go one block and turn right onto East Main. The Lions Club is the last building on the left (gray).

Directions from Cincinnati, Ohio take I-74 to exit #44 Miamisburg-Centerville. Stay in middle left hand turn lane and turn left onto route 725. At Alex Rd turn right. After crossing RR tracks go to 2nd traffic light and turn left onto Central Ave. Get in right hand lane, pass football field and the Jr. High. At traffic light turn right onto Cedar go one block and turn right onto E. Main. The Lions Club is the last building on the left (gray). Speakers to be announced later.

DAYTON 98 SATURDAY AGENDA

Room 3, 2:45-5:00 FAST SCAN TV, Moderator: Bill Parker W8DMR. Speakers to be announced later.



ELECTRONICS

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Tel: 1-626-447-4565 m-th 8am-5:30pm pst (UTC - 8) Tom (W6ORG) & Mary Ann (WB6YSS) O'Hara

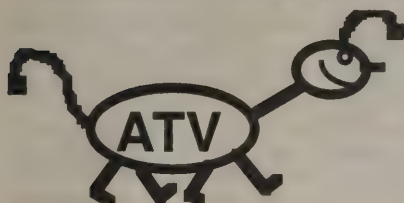
24 hr FAX order line 1-626-447-0489

Email: tomsmb@aol.com

Web site: <http://www.hamtv.com>



NEW @ P. C. ELECTRONICS



We are on the web: <http://www.hamtv.com>

Page 3 has a number of links to other ATV sites that are worth checking out and their links.

Page 4 will always have the current list of models and prices.

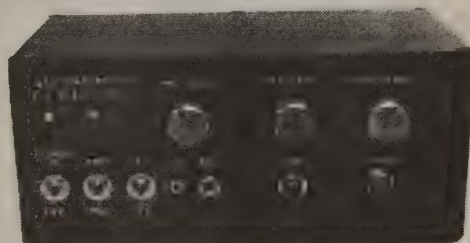
Check it out and "GET the ATV BUG!"

YOU ASKED FOR IT!

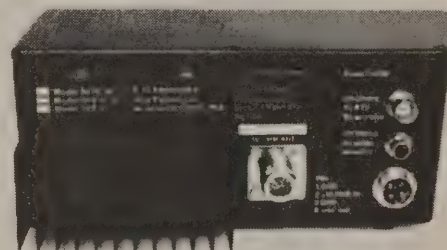
≥10 Watt pep 420-450 MHz ATV TRANSMITTER.....\$439

The new TX70-10 is a higher power version with all the features of the 1.5 watt TX70-1b for those that just need a transmitter for one end of a public service event, or want to use their existing down-converter, cable TV or just work a crossband repeater. This ready to go transmitter contains all the modules used in the TC70-10 Transceiver less the down-converter.

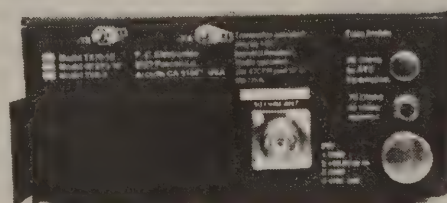
- * **2 Channels.** Comes with your selected transmitter frequency or specify a second one for \$20 additional: 426.25, 427.25, 434.0 or 439.25 MHz. Front panel F1 / F2 toggle switch makes the change.
- * **Adjustable Power.** Typical adjustment range of 2 to 14 Watts pep to enable properly driving different amps within their linear range.
- * **Built-in T/R Switching.** Front panel switch or mic push to look jack switches the rear panel type N antenna jack from the BNC jack to your downconverter to the SAU4 power module output and switches the +13.8 Vdc from pin 3 of the power jack to the transmitter modules.
- * **Independent Line and Mic Audio.** Plug in a low impedance dynamic mic and you can do voice over commentary and control the levels of the line audio from your VCR or camcorder as well as mic. Or just use the mic line audio from your camcorder.
- * **Transmitter Video Monitor Output.** Lets you see exactly what you are transmitting by detecting the modulation at the antenna output. This is the best way to know your video gain is set right. Also, in receive, the direct camera video is present to enable setting up the scene before transmission.
- * **RTX70-10 ATV Repeater Version** Same as the TX70-10 but has feed through caps on the back panel for PA and Exciter +13.8 Vdc power input instead of the 4 pin jack. Makes a nice low power repeater transmitter for public service work, or to drive the Teletec DXR-U150. Same price - \$439



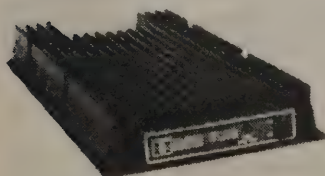
TX70-10 7.3x4.7x3.3" die cast aluminum



Rear view TX70-10



Rear view RTX70-10 Repeater version



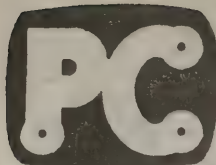
DXP-U150...\$429



DXR-U150...\$789

TELETEC 150 WATT ATV AMPS

Drive with our TC70-10 Transceiver or new TX70-10 / RTX70-10 Transmitters above. The typical 13 to 15 watt pep output will drive these amps to 120 to 140 watts pep output. Excellent linearity and efficiency. Requires separate regulated 13.8 Vdc @ 20 amp supply. Repeater version is continuous duty with built in fans. The standard version can be key down for over an hour if an external fan blows air over the fins - otherwise 7 minutes on. VSWR and over temperature protection. 18 mo. warranty.



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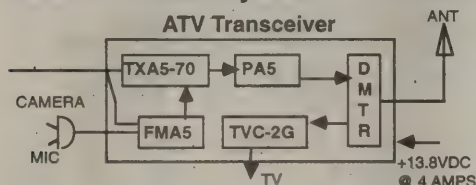
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BUILD YOUR OWN 70 cm 10 Watt ATV STATION

Basic 10 Watt system - 3 Transmitting modules as seen in the ARRL Handbook



420-450 MHz BAND



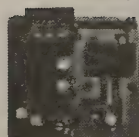
TXA5-70 EXCITER 4.0"x2.25"



PA5 AMP 3.5"x2.0"

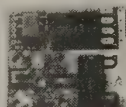


FMA5-F SOUND 3"x1.5"

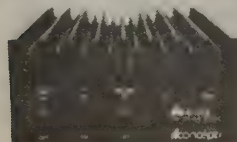


DMTR-70-10 2.2x2.2"

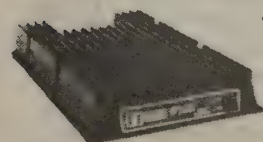
T/R RELAYS



TR-1b 2 x 1.8"



RFC 4-110
100 WATT AMP



DXP-U150
ATV version

TELETEC
150 WATT AMPS



DXR-U150
ATV Repeater version

NEW

See 1995-7ARRL Handbook chapter 12 or 1985 to 94 chapters 20 & 7. These modules are the latest upgraded generations. Mount the boards & parts for a 10 to 15 Watt basic module ATV transceiver in a 3x8x12" aluminum chassis for shielding and heat sinking, or Hammond 1590F die cast aluminum box like we did for the TC70-10. Use the DMTR-70-10 module to switch your 50Ω 70cm antenna between PA5 amp and TVC-2G (page 5) downconverter. Schematic & layout comes with each wired and tested board.

TXA5-70c ATV EXCITER/MODULATOR BOARD.....\$99

Replaces TXA5-5. Smaller board for stand alone portable or R/C applications in addition to 10 Watt systems. Wired and tested board. Adjustable 50-80 mW output to properly drive the PA5 10 Watt module and in turn the DXP-U150, 4-110, D1010N-ATV. Built-in sync stretcher. Accepts standard 1 volt composite video from color camera, VCR, computer, etc. Wideband modulator gives excellent color and high resolution. Draws 70 mA at 13.8 Vdc. One crystal included, but relay switch between 2 sockets. **Extra crystals \$20.**

We stock 439.25, 434.0, 427.25 & 426.25 MHz, other 70 cm freq. may take 4 weeks to special order xtal. 100 Ohm carbon panel pot for video gain \$5.

PA5 10 WATT P.E.P. ATV POWER MODULE.....\$99

An all mode Toshiba S-AU4 is mounted on a heatsink with a stripline PC board to output over 10 Watts p.e.p. when driven by 80 mW from the TXA5-70. 50 Ohms in & out. Broadband, 420-450 MHz, linear, no tuning. 250 mW max RF input, do not use with 1 Watt modules. req. 13.8Vdc reg. @ 3 amps.

FMA5-F AUDIO SUBCARRIER GENERATOR BOARD.....\$39

Temperature stabilized VCO with adjustable deviation to more than 25 kHz. Transmits broadcast standard sound with your picture. Accepts a Low Z mic (100-600 Ohms), also line level audio from VCRs, camera mics, computers, etc. Up to 1 v pk-pk drive to the TXA5-70, TXA5-RC or TXA5-33 exciter modulators. Works with any transmitter having 5 MHz modulation bandwidth. Req. 11 to 14 Vdc @ 20ma. We can special set freq. for FM or PAL up to 6.8 MHz.

DMTR-70-10 T/R RELAY, DETECTOR & MONITOR BOARD.....\$45

T/R switching for up to 15 Watt 70cm ATV systems. Negligible insertion loss, 60dB isolation. Mounts on flange type UG58 N chassis jack (\$2). Relays for switching + power to all basic modules, camera video in rec. to detected output video in xmit. to monitor. 2.2x2.2". 13.8Vdc @ 120 ma.

TR-1b 70cm T/R RELAY BOARD.....\$29

Simple 15W T/R relay and up to 1A +13.8 power relay. Mounts on UG58

4-110 RF CONCEPTS 100 WATT P.E.P. AMPLIFIER.....\$359

420-450 MHz all mode: FM, SSB, CW, & ATV. Good color and sound from the 10 Watt basic modules or TC70-10. Sync power (p.e.p.) 100 Watts with blanking set for 60 Watts (typical drive is 6-7 Watt sync tip, 2-3 Watt blanking set up). ATV duty cycle 10 min on / 5 off, other modes 5 on / 5 off - adding a fan over the heatsink will extend the transmit time. RF sense T/R switching. 12x3x5.5". Req. its own 13.8 Vdc @ 22A supply. 15 Watts max drive. Receive Preamp.

DXP-U150 TELETEC 150 WATT P.E.P. AMPLIFIER-ATV version.....\$429

420-450 Mhz all mode: FM, SSB, CW, & ATV. Good color and sound from the 10 Watt basic modules or TC70-10. With 15 watts pep drive from a TC70-10, this amp gave 142 Watts sync power (p.e.p.) & blanking pedestal set for 85 Watts - very little sync stretching required such that you can go barefoot without readjusting the pedestal or drive. 1 dB compression point was 80 watts. ATV duty cycle 7 min on, 5 off, a fan blowing over the heatsink can extend the transmit time indefinitely. RF sense T/R switching. 11x7.7x2". Req. its own 13.8 Vdc @ 25A supply. 35 Watts max drive, .5 min. Receive Preamp. Overtemp & VSWR protection. DXR-U150R cont. duty repeater version ...\$789

Remember when comparing prices, ours include UPS surface shipping in cont. USA.

11/97



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THE ATV TWINS

**THE LOW COST
 PROGRESSIVE
 ALTERNATIVE
 TO A TRANSCEIVER.**

**1.5W pep output
 420-450 MHz BAND
 Made in U.S.A.**



TX70-1b Transmitter only \$299 delivered UPS TVC-4G Downconverter \$89

Not Sure what ATV is all about and your hobby budget's tight? Start with the tried and true TVC-4G Downconverter to see the action for just \$89. Then later, when you want to transmit, just add the TX70-1b companion Transmitter at only \$299.

TX70-1b SPECIAL FEATURES:

- Two frequency 1.5 W p.e.p. continuous duty transmitter properly matches 15 or 50 W linear amps below with adjustable internal sync stretcher on the time proven KPA5 transmitter board
- Built-in RF T/R relay board switches antenna and applied 13.8 Vdc between transmitter and your external ATV downconverter
- Full 25 kHz deviation broadcast standard 4.5 MHz sound subcarrier with independent mic and line audio controls allow voice over commenting while showing home video tapes. Accepts low impedance dynamic mics with "Push to Look" switch.
- Transmit RF detected composite video outputs to monitor phono jack on back to see what you are transmitting. In receive you see your own direct camera video at this jack to enable focus and lighting set-up before flipping the switch into transmit.
- RCA phono jack camcorder or VCR composite 75 Ohm video and line audio inputs, type N 50 Ohm antenna input, and 50 Ohm BNC output to downconverter connectors.
- Small rugged shielded cabinet - 7.3 x 4.7 x 2.1", 1lb. 11 oz.

Just plug in your camera, VCR, camcorder, etc. composite video and audio, 70cm antenna, 12 to 14 Vdc @ .5A, and you are ready to transmit live action color or black and white pictures with sound to other amateurs. Specify 439.25, 434.0, 427.25 or 426.25 MHz transmit frequency. 1 crystal included, second crystal add \$20.

*Transmitting equipment sold only to licensed Tech class or higher radio amateurs verified in the Callbook for legal purposes. If newly licensed, moved or upgraded, mail or fax copy of license or test certification.

WHAT ELSE DOES IT TAKE TO GET ON ATV?

Any code free Tech class or higher amateur can get on 70cm ATV with full color and sound. Any video camera, camcorder, VCR or computer with a composite video output can be plugged into the front panel phono jacks for both audio and video transmission.

Start by selecting a 70cm antenna and connecting a TVC-4G downconverter to your TV set to receive. Add the Transmitter along with your camcorder and 13.8 Vdc from a regulated power supply capable of .5 Amps and you are on the air. It's that easy!

DX with TX70-1b's and KLM 440-16X antennas line of sight and snow free is over 22 miles, 7 miles with the 440-6X normally used for portable uses like parades, races, search & rescue, damage assessment, etc. For greater DX or punching thru obstacles add either of the ATV compatible 15 or 50 watt amps listed below.

The TX70-1b has full bandwidth for color, sound and live action just like broadcast. You can show the shack, home video tapes, computer programs, Internet, radio club meetings, repeat SSTV, weather radar, or even Space Shuttle video if you have a home satellite receiver. See 1995-97ARRL Handbook chapter 12, or 1985 to 94 editions chapters 7 and 20 for more info and Repeater Directory for local ATV repeaters.

BUY BOTH AND SAVE \$29

If you order both the TX70-1b and the TVC-4G at the same time, the special package price is \$359

Most telephone orders shipped within 24 Hours

COMPLETE 70CM 420-450 MHz Band ATV STATION



Your TV set



D26N



Your video camera
 or camcorder

TX70-1b-\$299 & TVC-4G-\$89

ATV Xmit & Downconverter

1.5 Watts p.e.p.

Specify frequency(s)

439.25, 434.0, 427.25

or 426.25 MHz

2nd crystal add \$20

13.8 Vdc

@ 1/2A Power Supply

required

Optional matching Amplifiers

RFC Mini-Amp 440-N 12-18W out ..\$149

Mirage D26N 50 Watts RF out\$249

req 4A or 12A 13.8 Vdc power supply

Put fan over heat sink for continuous duty

Antennas see page 5

DSFO ATV-25 16 dBd.....\$149

KLM 440-16X 14 dBd\$142

KLM 440-10X 11 dBd\$82

KLM 440-6X 8.9 dBd\$65

Remember when comparing prices, ours include UPS surface shipping in cont. USA.

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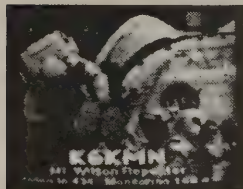


P. C. Electronics 2522 Paxson Lane Arcadia CA 91007-8537 USA
 Tel: (626) 447-4565 m-th 8am-5:30pm pst (UTC - 8) Tom (W6ORG) & Mary Ann (WB6YSS) O'Hara
 24 hr FAX order line (626) 447-0489 Email: tomsmb@aol.com
 Web site: www.hamtv.com



420-450 MHz ATV DOWNCONVERTERS

GET STARTED WITH ONE OF THESE TO SEE THE ACTION!



Space Shuttle video
off the air from an ATV
Repeater. EVA in the
cargo bay.



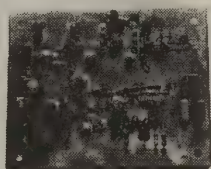
TVC-4G



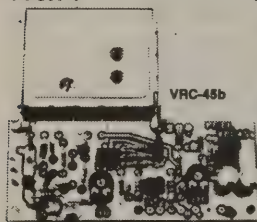
TVC-2G 1.9"x3.7"



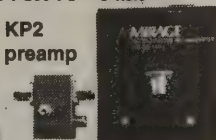
TVCX-4



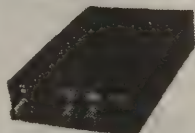
TVCX-70 3"x3.8"



VRC45 45 MHz IF
AM ATV Receiver



KP2
preamp



TVC-4G PACKAGED DOWNCONVERTER with AC supply.....\$89
 Contains the sensitive TVC-2G board in a black die cast 4.7x3.7x2.1 inch aluminum box ready to go with 120 Vdc 60 Hz to 12Vdc 100 ma. wall plug power supply. N connector antenna input and F output to TV. Companion downconverter to our TX70-1b transmitter and other TX boards. TVC-4G is handy for ATV portable, mobile, demos, or getting a friend on. Also used in community pay TV systems outside USA.

TVC-2G GaAsFET TUNEABLE DOWNCONVERTER BOARD.....\$49
 Wired and tested module connects between 70cm antenna and TV set tuned to channel 2, 3, or 4 (special order 45.75 MHz IF or LVSB).

Varicap tunes whole 420-450 MHz 70CM Amateur band. Sensitive 1 dB NF dual gate surface mount GaAsfet in both the preamp & mixer. ≥20 dB gain. Req. +11 to 18 Vdc @25 mA, shielded enclosure, knob, 10K panel pot, switch, .5A fuse and connectors.

TVCX-70 XTAL CONTROLLED GaAsFET DOWNCONV......\$109
 Crystal controlled version of tuneable TVC-2G board used in repeaters or unattended operation with wide temperature variations or at a public service event where a tuning knob might be touched by unauthorized persons. Specify input frequency (421 to 440 MHz) and output (ch 3, 45 or 70 MHz IF). Req. +11 to 15 Vdc @ 50 mA, shielded enclosure N input & F out connectors. 2 freq. add..\$20. LMB CAB-234 box...\$14

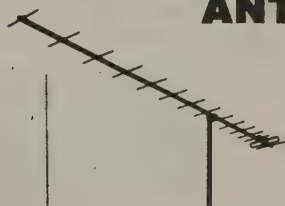
TVCX-4 is the TVCX-70 board ready to go in the CAB-234 box\$139
 Type N ant. input, F TV out. Two frequency with toggle switch installed....\$169

VRC-45b 45.75 MHz IF/receiver module. 2 composite video outputs, squelched line & speaker audio outputs. Used with TVCX-70 or other in a CAB-247 box for complete receiver. 4x3.75". 13.8V @ .25A.....\$109

MIRAGE KP2/440 ANTENNA MOUNTED PREAMP.....\$174
 If your coax loss is greater than 3 dB then this preamp can make a difference. Automatic T/R switching 1/4 to 150 Watts. .6 dB NF 15 to 25 dB gain. N conn. Req. 12 to 14 Vdc - in shack dc coupler included.

RECEIVER, CHANNEL 3 TO VIDEO AND AUDIO OUT.....\$56
 Ch 3 input from your 70cm or 33cm downconverter and outputs composite video and line audio to monitor, camcorder or VCR. 13.8 Vdc, AC PS incl. 5x3.3x1.5"

ANTENNAS FOR 420-450 MHz ATV



KLM 440-6X 8.9 dBd gain, 28" boom, vertical or horizontal polarization rear mount. Ideal for point to point, fixed at a repeater or small enough to be portable at public service events to minimize multipath ghosts and get some gain at the same time. Wide 60 degree beam width. All 4 include 50 Ohm balun with Type N female conn.....\$65 delivered UPS surface

KLM 440-10X 11.2 dBd gain, 64" boom, rear mounting H or V. Bigger version of 6X.....\$82del

KLM 440-16X 14.2 dBd gain, 10.5 ft boom, ctr. mtg. full 420-450 MHz BW, rugged.....\$142 del

DIR. SYST. DSFO ATV-25 16 dBd gain, 17 ft boom, ctr. mtg, highest gain ATV by K1FO.....\$149

The antenna, coax and tower height are the most important part of your ATV system and deserves your most care and attention. ATV antennas must have broad bandwidth in addition to high gain and low VSWR. Few other antennas work well at both 439 and 421 MHz. The DSFO & 3 KLM antennas listed here fit the requirement and have a long history of rugged operation with ATVers. The gains listed have been proven out at VHF/UHF conference antenna measuring contests, they are not marketing hype. All three beam antennas listed here take up to the maximum legal power limit. Balun or matching network with female type N connector is included. We suggest using Belden 9913 (2.6 dB/100') or better 50 Ohm low loss coax or hard line. Belden 8214 (4.2 dB/100') is more flexible and is fine for runs less than 50 feet. Antenna height to get above trees is more important than coax length. Check with local ATVers to find out polarity - up to -20 dB if wrong. Always verify any new antenna system with a RF power meter for less than 10% reflected power before normal transmitting over 20 seconds. Weather-proof all outside connectors.

DIAMOND F718 9.3 dBd OMNI 15' long, F718L=420-430, F718J=430-440 & F718A=440-450 MHz.....\$238

Great for repeaters, emergency operations centers or home station round tables without having to rotate a beam.

F718(x)

Remember when comparing prices, ours include UPS surface shipping in cont. USA.

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900 and 1200 MHz BAND ATV GEAR

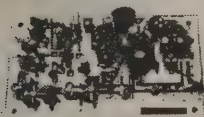
Now You Can Go Full Duplex ATV

Did you know you can run full duplex or repeat with your 70 CM ATV system by simply adding a 33 or 23 CM system? Receive and transmit at the same time, crossband, without filters; you can get enough isolation usually with 10 ft antenna separation. How about a remote link to your base 70 CM station? Link weather radar or Space Shuttle NASA select satellite video to your local ATV repeater - there is a whole new world of personal & public service applications possible. Sure the 900 MHz band goes half the distance of the 400 MHz band, and 1200 MHz 1/3 given the same power and antenna gain, but you can make up for most of that with smaller but higher gain beams and an antenna mounted preamp. Standard ATV is AM and uses a regular TV set, however we do have FM ATV for the 1200 MHz band where there is the 20 MHz bandwidth required. AM is better for weak signal DX and FM is better above 5 uV (just barely getting sound and color).

TRANSMITTERS for the 900 and 1200 MHz bands:



TX33-1b Transmitter



TXA5-33 900 MHz board 3x5"



23cm FM ATV

IF70

TX1300

TX33-1b Ready to go 902-928 MHz band Transmitter. *Similar features as TX70-1b....\$329
 1 Watt will get you snow free pictures over a line of sight path of 11 miles if 3318LYARM beams are at both ends. 50 miles if a 18 watt Downeast 3318PA amp is added. Contact Downeast directly at (908) 996-3584 for the amp. *Specify single frequency - we stock 910.25 for simplex and 923.25 for repeater or link. Draws 500ma @ 13.8Vdc.

For those who want to package their own system:

TXA5-33 ≥1 Watt 902-928 MHz Band wired and tested Transmitter board.....\$139

FMA5-F Sound subcarrier board will add audio on with your video (see cat pg 2)...\$39

TR-1b module gives low loss T/R antenna switching between TXA5-33 & TVC-9..\$29

HFT TX1300 1 WATT FM ATV TRANSMITTER 1252, 1255 & 1265 MHz.....\$379

Will drive Downeast 18 and 35 watt amps. 3 channels programable. Standard 4 MHz video deviation and 5.8 MHz sound (adjustable 4.5-6.5 MHz). SMA RF out. Requires 1 Amp at 12 to 14 Vdc. 6.5x4.2x1.5", 1 lb. RCA jack A/V inputs.

HFT IF70 70 MHz FM ATV IF/RECEIVER\$249

Add one of our downconverters and preamp below for complete FM system. RCA video out and 8 ohm speaker jack. F 75 ohm 70MHz input. 12 to 14 Vdc @ 300 ma.

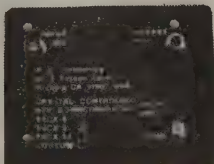
Watch for new 1200 MHz TX23-1b packaged ready to go transmitter coming soon.

DOWNCONVERTERS for the 900 and 1200 MHz bands:

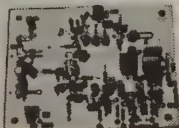
TVC-9G
TVC-12G
Tuneable



TVCX-9
TVCX-12
Crystal



TVCX-33
TVCX-23
Crystal



TUNEABLE READY TO GO in 4x2.5x7 shielded cabinet with 120 Vac to 12Vdc wall plug power supply. All our downconverters have GaAsfet preamp and mixer. If your run of Belden 9913 coax is more than 50 ft, or FM, consider adding the antenna mounted preamp to make up for its loss.

TVC-9G tunes whole 902-928 MHz band down to ch 2, 3, 4 or FM 70 MHz.....\$99

33LNAWPQ Downeast antenna mounted preamp, 11dB gain, .8 dB NF.....\$100

TVC-12G tunes whole 1240-1300 MHz band - spec. ch 7,8 or FM 70 MHz.....\$109

23LNAWPQ Downeast antenna mounted preamp, 12 dB gain, ≤1 dB NF.....\$100

CRYSTAL CONTROLLED in die cast aluminum box, requires external 11 to 15 Vdc.

TVCX-9 specify in 900 MHz freq. & out on CH 3, or AM 45 or FM 70 MHz IF.....\$149

TVCX-12 specify input 1200 MHz freq. & out on CH 10, or 45 or 70 MHz IF.....\$169

WIRED AND TESTED BOARDS for those who package their own systems:

TVC-9 varicap tunes 902-928 MHz to open TV ch 2, 3, or 4, or FM 70 MHz IF\$59

TVCX-33 crystal controlled specify 900 MHz input and CH 3 or IF output freq.....\$119

TVCX-23 crystal controlled specify 1200 MHz input & CH 10 or IF output freq.....\$139

VRC-45b 45.75 MHz IF/ NTSC AM receiver. 2 video outputs, squelched audio..\$109

ANTENNAS for the 900 and 1200 MHz bands:

DIRECTIVE SYSTEMS 3318LYARM 33CM YAGI 18 element 14.2 dBd.....\$99

Assembled, specially optimized for 910-923 MHz ATV. 6 ft boom, 50-ohm, N fem.

DIRECTIVE SYSTEMS 2424LYRM 23CM YAGI 24 element 16.2 dBd.....\$99

Assembled, specially optimized for ATV on 1241-1289 MHz. 6 ft boom, 50-ohm N.

COMET R2000 5.1 dB-portable or mobile 902-928 MHz 19" omni vert.....\$39

UG-27/CU right angle N connector for portable or fixed operation with TVC-9G....\$5

COMET FP-19 10 dBd base or repeater omni vertical 902-928 MHz 7 ft 4" long.....\$119

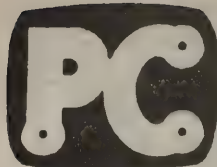
DIAMOND F1230 11.3 dBd base or repeat omni vert. 1240-1300 MHz 10.5 ft.....\$163



Directive Systems Loop Yagi
(formerly Downeast Microwave)
Horiz. or Vert mounting, 6 ft boom.

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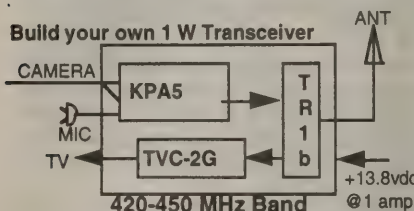
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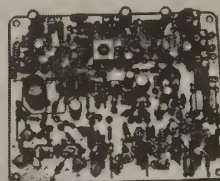


THE "KREEPIE PEEPIE" ATV TRANSMITTER

THIS IS THE 420 - 450 MHz BAND ATV TRANSMITTER BOARD YOU HAVE READ ABOUT THAT HAS SURVIVED MANY BALLOON FLIGHTS TO OVER 100,000 FEET AND BACK. ALSO USED FOR ROCKETS AND R/C MODELS WHERE AN ALL IN ONE BOARD WITH SOUND IS DESIRED OR FOR DEDICATED LINKS AND REPEATERS. JUST THE THING FOR THE BUILDER WHO WANTS TO PACKAGE AND MAKE THEIR OWN PORTABLE OR HOME TRANSCEIVER WITH A WIRED AND TESTED BOARD.



High altitude balloon video



3.25 x 4", Video and Sound

KPA5-F board only \$169



KPA5-F 70CM ATV XMTR BOARD FEATURES:

- 1.5 Watts P.E.P. adjustable to 100mW. Run barefoot for portable, but if needed for greater DX, the output properly matches the RFC Mini-Amp 15 watt, D26N-ATV 50 Watt linear amp for full output or D100TVN to over 70 Watts with its adjustable sync stretcher. Same board as used in TX70-1b.
- FULL COLOR AND SOUND on a small 3.25 x 4" board
- Wired and tested board runs on external 13.8 Vdc @ 300 mA. supply or 12 V battery. Weighs only 3 oz.
- Accepts composite video from cameras, camcorders, VCRs, computers, etc. 2 audio inputs, one for low Z dynamic mic, & one line level from most cameras & VCRs. Transmit monitor output enables seeing your own true RF detected video.

ACCESSORIES:

- L.M.B. CAB247 7.3x4.7x2" roomy aluminum box.....\$22
- CAB234 4.6x3.6x2" aluminum box, smaller tighter fit.....\$14
- 100 Ohm carbon panel pot for video gain control.....\$5
- TR-1b RF T/R relay module, mounts on chassis N conn.....\$29
- UG58 N fem.chassis jack..\$2. UG21 male 9913 plug..\$5
- TVC-4G..\$89 or TVC-2G..\$49 Downconverter (page 5)
- RG174 50 Ohm 1/10 inch dia. coax cable, 6ft.....\$3
- RF CONCEPTS Mini-Amp 440-N 1.5 in /12-18 out\$149
- MIRAGE D26N-ATV 1.5 in / 50 out all mode amp.....\$249

KPA5 APPLICATION:

PORTABLE CORDLESS TV CAMERA. Think of it as a video HT. Place the KPA5 in one of the L.M.B. Diecast aluminum boxes, Diamond RH77CA half wave on top or at the end of 50Ω coax attached to a headset. Plug into a 12 to 13.8V source such as a 12 Vdc battery pack. Depending on terrain & receiving antenna DX is typically over 1 mile. Then at home with KLM 440-16X antennas at both ends DX is >22 miles snow-free line-of-sight.

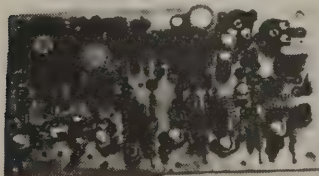
Price only \$169 supplied with one crystal on 426.25, 434.0, 427.25 or 439.25. 2nd xtal add \$20. Has 2 relay switched crystal sockets. Specify frequency(s) when ordering, check with local ATVers, ARRL Repeater Directory or call us. Sold only to code free Technician class or higher licensed radio amateurs.

- DIAMOND RH77CA 2m/70cm omni antenna, BNC, 15"....\$34
- DIAMOND RH951 2m/70/23cm omni antenna, BNC, 15".....\$55
- DIAMOND NR-770H 2m/70cm mobile ant. , UHF, 3/5.5 dBd.....\$59
- DIAMOND MX-72N 2m/70cm antenna duplexer.....\$59
- KLM 440-6X 8.9 dBd ant., 28" boom, >50 deg. BW.....\$65
- KLM 440-10X 11.2 dBd, antenna, 64" boom.....\$82
- KLM 440-16X 14.2 dBd antenna, 10.5 ft boom.....\$142
- DSFO ATV-25 16 dBd highest gain beam, 17 ft boom.....\$149
- 1000 pF Feed-thru Cap for R/C or repeater builders.....\$4



TXA5-RC 1 Watt ATV Transmitter...\$129 Ask for our R/C Application note when you order your transmitter board.

Designed primarily for Radio Control models, Rockets, Balloons, etc. with it's small 2.25 x 4 inch size and 2 oz. weight. Adjustable power output from 1.5 p.e.p. to 100 mW. Draws 350 MA @ 13.8 Vdc at 1 Watt, 200 ma at 100 mW, runs on 11 to 14Vdc. Has adjustable sync stretcher and provisions for sound from the FMA5-F board in case your application needs higher power or subcarrier sound.



TXA5-RC 2.25 x 4"

1Watt Video only

Sound may be added with FMA5 board

Comes wired and tested ready for you to mount in a shielded enclosure, connect up coax from antenna, and wires to camera and power source. Plan on shielding your R/C receiver and adding the simple antenna low pass filter supplied with the application note. The R/C app note also has info on enclosures and antennas. Receive with one of our 70 cm downconverters listed on page 5 and a TV set. Specify frequency; 426.25 MHz suggested for R/C, crystals for other standard ATV frequencies available.

TXA5-70c 80 mW board...\$99 Can also be used for R/C applications where 2 frequency capability is desired - 2nd xtal \$20. Same size as TXA5-RC but 80 mw output for .25 to 5 mile DX, or add 10 Watt PA5 amp (\$99) for 3 to over 90 mile line of sight DX depending on antennas.

See our web site page 3 for links to R/C ATVers - www.hamtv.com.

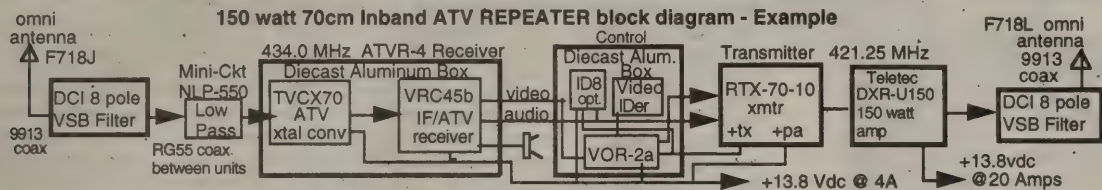
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 24 hr FAX order line (626) 447-0489 Email: tomsmb@aol.com
 Web site: www.hamtv.com



READY FOR AN ATV REPEATER OR LINK IN YOUR AREA? WE HAVE THE MODULES AND SOURCES FOR INBAND OR CROSSBAND

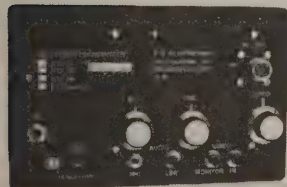
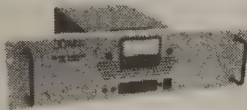


Select a RTX Transmitter and an ATVR Receiver for the bands and power you want, add the appropriate linear amp, VSB filters & antennas, ID & VOR-2a, power supply and coax for your own repeater. We suggest low in / high out for crossband repeat as best choice for seeing your own video, DX and cost considerations. Ask for a copy of our free 10 page ATV Repeater Application Note including recommended sources of filters, antennas, video IDers, expected line of site DX, etc., before you start so you can do it right the first time. Most can put together a good working ATV repeater for \$2400 to \$3200.

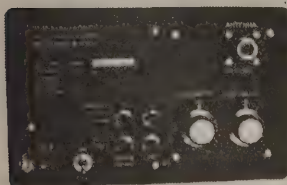


RTX70-10
10 Watt
Transmitter

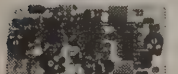
Teletec
DXR-U150
150W Repeater Amp



RTX >1W
Transmitters



ATVR
Receiver



VOR-2a



VSB filter

TRANSMITTERS ready to go in die cast aluminum box for tight RF shielding. >1Watt transmitters 7.3x4.7x2 and >10watt 7.3x4.7x3.3". Adjustable sync stretcher to enable set up of the right video to sync ratio after an amplifier is added. Independent mic and line audio inputs. Requires 13.8 Vdc at 500 ma.

RTX70-10 New >10 Watt output to drive Teletec DXR-U150 150W amp\$439
 RTX70-1 1.5W drives Mirage D26N to 50W, 421.25 MHz suggested freq. (ch 57)..\$289
 RTX-33 specify output frequency, 923.25 MHz most popular repeater output.....\$329
 RTX-23 1200 MHz 1 watt repeater transmitter is being redesigned and we hope to have it available in a few months. ATV compatible linear amps are available from Downeast Microwave for 900 and 1200 MHz - call them at (908) 996-3584.

RECEIVERS ready to go in a 7.3x4.7x2 die cast aluminum box for tight RF shielding. Contains a TVCX crystal downconverter and VRC-45b receiver. Two composite video outputs, squelched speaker & line audio outputs. Req. 13.8 Vdc @ 300 ma. We stock crystals for the most popular frequencies, others can be special ordered.

ATVR-4 specify frequency - 439.25 or 434.0 most popular for inband or crossband repeater input, 426.25 and 427.25 also available\$319
 ATVR-9 specify frequency - 910.25 most popular repeater input.....\$329
 ATVR-12 specify frequency - 1253.25 link, 1277.25 repeater input.....\$349

ACCESSORIES

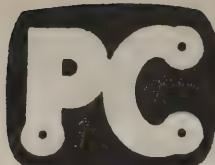
DCI -xxx-6C VSB FILTER., specify video carrier freq. 1 dB insertion loss, >200 W, 24x9.3x3" 12 lbs....\$279
 VOR-2a Video Operated Relay board...\$45, keys RTX upon detection of horizontal sync plus 10 min. & end of transmission momentary relay for switching to video ID to meet FCC regs. Pots for setting sensitivity, hang & ID time. 1.75x3.5".
 ID-8 Automatic Morse Audio Identifier...\$89, Communications Specialists board has 8 programmable and selectable messages up to 200 characters, CW 1-99 WPM, ID time 1-99 minutes, Non-volatile EEPROM memory. Includes programming key pad. Size 1.85x1.12x.35. Req. 6 to 20 Vdc @ 6 ma.
 DTD-1 DTMF Decoder...\$59, Communications Specialists board decodes up to 4 programable digits for latched or momentary relay driver output. Use for remote repeater on/off, video switching, etc. Size 2.0x1.25". +7 to 16 Vdc.
 LMB CAB 247 7.3x4.7x2 die cast aluminum box. Great for control housing VOR-2a, & ID boards...\$22

ANTENNAS When comparing prices remember ours include delivery by UPS surface in the contiguous USA. .

70cm F718 (L,J,A - specify video carrier frequency) Diamond vertical omni 9.3 dBd gain, 15 ft long.....\$238
 Recommended vert. omni for dual antenna inband 70cm or crossband repeater applications. Call Olde Antenna Lab for horiz omni-pg 8
 440-6X KLM 8.9 dBd gain 420-450 MHz 6 element beam. 28" boom, 60 deg.bw., end mounted (see pg 5)...\$65
 440-10X KLM 11.2 dBd gain 420-450 MHz 10 element beam 64 " boom, end mounted.....\$82
 440-16X KLM 14.2 dBd gain 420-450 MHz 16 element beam 10.5 ft boom, center mounted\$142
 DSFO ATV-25 Directive Systems 16 dBd gain 420-440 MHz 25 element beam 17 ft boom, center mounted.\$149
 33cm FP-19 Comet vertical omni 10 dBd gain, 7 ft 4 in long. Covers 902-928 Mhz\$119
 3318LYARM Directive Systems 14.2 dBd gain 902-928 MHz beam. 6 ft boom, end mounted(see pg 4).....\$99
 23cm F1230 Diamond 1200 MHz band vertical omni 11.3 dBd gain, 10.5 ft long.....\$165
 2424LYRM Directive Systems 16.2 dBd gain 1240-1300 MHz beam. 6 ft boom, end mounted(see pg 4)....\$99

HAMS; Call. Write or Email for your 10 page ATV catalogue and repeater application notes.

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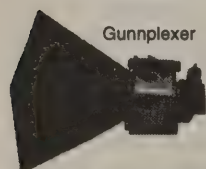


ELECTRONICS

GVID board



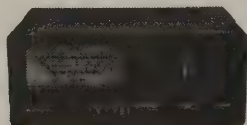
Off the air repeated Shuttle video with GVID overlay



Gunplexer



GVM-1 board



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Tel: (626) 447-4565 m-th 8am-5:30pm pst (UTC - 8) Tom (W6ORG) & Mary Ann (WB6YSS) O'Hara
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VIDEO IDer HIGH TECHNOLOGY FLIGHT GVID\$175

This small .8 x 3.15" board can overlay your call, location and any other information in white letters on any clean video source such as from a camera, VCR, TVRO or weather radar. This is *not* for repeater video with less than P4 signals. The information is held in a PROM, so no loss when power fails. When ordered, we send you a sheet in which you sketch the lettering you want and location. Return it to us and we come as close as possible to it. Additional programmed PROM's are \$25 each. GVID is ideal for putting in the video line from NASA Select or weather radar to meet the legal requirement and still not interrupt with a full screen video id source just when the best picture comes on. Or it can relieve you of remembering to ID at the home station or at public service events. There is an automatic 5 to 10 minute timer that turns it on for 10 seconds or it can be set to run continuous. Also has three switch and one analog telemetry input. Req. 5 Vdc @120 ma or 13.8 Vdc through a 7805 regulator. Small enough to be put inside most chassis or its own 1590B die cast aluminum box & connect between video jack and transmitter board.

GVM-1 Video Modulator Board for Microwave Gunplexers.....\$29

Make a line of sight low cost link with little chance of interference. GVM-1 is a wired and tested board for use with 10 and 24 GHz Gunplexer modules that have a separate varicap input. Designed to drive a long RG-6U coax with a 75 Ohm termination at the varicap for remoting. Supplies primary regulated +10V up to 1A to Gunn diode input. Provision for sound from FMA5 board. Requires +12 to 15 Vdc. Has standard video pre-emphasis and pot for 4 or 11 MHz deviation. Pot for fine varicap bias frequency adjust. 1.5 x 2.0". Plans and full size drill template for control box using a CAB247 die cast aluminum box included. Use a 70MHz satellite TV receiver to receive with Gunplexer, or modify a Ku band LNB. Gunplexers (\$40-\$60) available from SHF Microwave, 7102 W. 500S., La Porte IN 46350. Email: arutz@shfmicro.com for their catalogue or web site: www.shfmicro.com

DIAMOND SX-1000 RF POWER METER.....\$259

This power / VSWR meter covers just about all you will ever need in one box. No need for an expensive meter plus slugs for each band and power level. The SX-1000 covers 1.8 to 1300 MHz with switch selectable full scale ranges of 5, 20 and 200 Watts. Type N connectors above 400 MHz and SO239 below. Check your antenna VSWR as well as accurately set the blanking pedestal whether barefoot at 1.5 Watt or thru a 100 Watt amp.

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Micro Video Products	Ed	16201 Osborne St.	Westminster	CA	92683	(800) 473-0538
Geotek	David	92 Aero Camino	Goleta	CA	93117	(805) 687-3181
Rick's Communications	Rick	7115 Barbera Ave	Winton	CA	95388	(209) 357-5028
The Radio Place	Glen	5875-A Power Inn Road	Sacramento	CA	95824	(916) 387-0730
The Olde Antenna Lab	Dave	41541 Dublin Dr.	Parker	CO	80134	(303) 841-1735
Lentini Communications	Alex	21 Garfield St	Newington	CT	06111	(800) 666-0908
International Radio Syst.	Juan	5001 NW 72nd Av	Miami	FL	33166	(305) 594-4313
Brewers 2-Way Radio	Doug	14918 N. Florida Ave	Tampa	FL	33613	(813) 960-8023
Tinker's Workshop	Larry	3207 13th St W	St. Cloud	FL	34769	(407) 892-2774
StarComm Wireless	Richard	2024 N. King St #201A	Honolulu	HI	96819	(808) 845-7827
Amateur Radio of Hagerstown	Fred	17561 York Rd	Hagerstown	MD	21740	(301) 714-0688
Michigan Radio	Tom	23040 Schonenherr	Warren	MI	48089	(800) 878-4266
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model TVX-2PS is \$825. 50 ohm N connector antenna output. Call, fax or write us for the special order form and more information. All orders require a written statement that "The TVX-2 will not be used in the USA, but will be used in (give city and country)". Typical application: subscribers receive 426.25 MHz on ch 3 with our TVC-4G downconverter (\$89) & KLM 440-6X (\$65) antenna. For higher power, we have the Teletec DXR-U150 for 100-150 watts between 420-450 MHz. Other frequencies contact Pineapple Tech. 1-702-266-4000. Prices are delivered UPS surface to your freight forwarder or agent in contiguous USA. All TVX transmitters take 4 to 8 weeks delivery after receiving paid order and statement. None are off the shelf - each is made special to your specified channel - 10Watt VHF ch 3 - 6 or UHF ch 14 - 20 or 420 to 512 MHz, 1-2Watt ch 7-13 & UHF. Specify 4.5 MHz NTSC sound or PAL frequency.

11/97

W3HMS Returning from Swiss ATV Meeting

John Jaminet, W3HMS

Gentlemen.....delighted to report I arrived home late Thursday 23 Oct after a super time at the Swiss ATV meeting near Lausanne on 18 Oct. and QTH visits in France and Switzerland. Lausanne is east of Geneva in the French speaking region of HB9.

I also visited with several hams while there and set up many future contact possibilities with Swiss and French ATVers. I was pleased to dine and visit with Michel and his XYL, Simone, in their home and station. Michel Vonlanthen is HB9AFO and he is the President of the Swiss ATV organization. I was happy to discuss mutual ATV organization issues with him. This was my second visit to his QTH so we spoke of many topics ATV being very prominent.

I was also delighted to visit and dine in the Geneva home of Dr. Angel Vilaseca, MD, and his XYL, Antoinette. He is HB9SLV and he has done much fine work on 10 GHZ; I was pleased to see his shack and film his 10 GHZ projects. He is active, as is HB9AFO, on ATV via the 23/13 cm FM ATV repeater located at Dole not too far from Geneva.

I communicate 2-3 times each week with Angel and Michel via Internet.

In France, I spent an enjoyable dinner evening with Denys and Sylvia Roussel. He is F6IWF and his QTH is near Reims. We spoke of ATV and many other topics. I had been there in November 1996. Denys is the creator of the method of using modified LNBs for Ku band satellite reception for 10 GHZ reception and for work on DROs for 10 and 24 GHZ.

I also spent two days in the home of Roland and Annette Cornuel, F8MM, and his XYL in the suburbs of Paris. He is the President of the French national ATV association, ANTA. There I got to film ATV ops at 90 miles on 23 and 70 cm simultaneously as well as a QSO 23/70 cm at 18 miles with Marc, F3YX, the father of French ATV. Roland's tower is the local landmark in his small village. The aroma of his local bakery with French bread in the making was just heavenly.

The QSO F8MM/F3YX was 70 cm AM and 23 cm FM. Pictures were perfect P-5 closed circuit monitor quality in PAL. Marc has a super video mixer/processor and showed us the received signal from F8MM in a small window on screen plus a VHS film clip in the background with another small box of himself with the mike. He sent the same signal via 10 GHZ FM using 10 mw with the Gunnplexor in his shack. F8MM has an

LNB modified and offset dish of about 50 cm mounted at 70 feet on his 74 foot self supporting tower which looks like a miniature Eiffel Tower.

In Europe, signal reports are expressed B1-B5 from the German B for Bild (picture).

I saw some really neat 10 and 24 GHZ ATV gear at the Swiss ATV meeting and a film of the 434 mile ATV 10 GHZ FM world record by F1JSR whom I spoke with and HB9AFO. One of the neatest things was a demo by a non-ham of a lens for 11 GHZ made from ordinary plaster. It was 30 cm wide by 6 cm deep in front of the LNB placed on the ground. Pictures were P-5 plus from the European Astra satellite. The lens follows optical rules and he said improvements are possible in both receiving and transmitting. A P-5 pix is super for a 12 inch device in front of an LNB.

The meeting itself was nicely organized starting at 0900 with business till 1000 then time to chat informally/see demos/buy at the small flea-market. Then several videos on ATV progress/events were shown followed by a FB catered luncheon. I was pleased to greetings from North American ATVers to the group at the opening and to talk later for about 15 minutes on US ATV operations and our progress on establishment of a North American ATV organization. The afternoon sessions were all technical and made maximum use of rear TV projection on a large screen for both objects and VHS cassettes. One funny thing.....when I asked Michel, HB9AFO, how I was doing for time, he said look at the screen....there he had written a message that I was out of time!!! The Swiss are great linguists....I saw the German/French translator speaking with folks in French, German and English. I was pleased to talk with him and also to spend several hours with Carlo Lue, HB9MPL, and his wife of Lugano, Switz. Carlo and I can speak quite well together in French both using hand-gestures, HI!

All in all, I was just delighted with the marvelous hospitality and courtesy shown to me by all those who hosted me in their homes and to those I met. ATVers and their wives are VERY nice people. The chaps in Europe are quite advanced in FM, 10 and 24 GHZ work...I was impressed.

73,

John Jaminet, W3HMS
Chair, IC.
26 Oct 1997

ATV DEMO IN NORTH CAROLINA: A GRAND EXPERIMENT

Mark Freeze, WD4KSE

It was a day for which I had been preparing for several months. It was the April 8th meeting of the Durham, NC FM Association (DFMA) and I was to give a program and a demo of Amateur Television (ATV). This would be my third ATV demo on my tour of the Triangle area. First there was the Raleigh Amateur Radio Society (RARS), then Orange County Radio Association (OCRA) and now DFMA. This demo also would be the most complicated and challenging demo...if it all worked. Things got complicated because DFMA meets in the Picadilly Cafeteria at South Square Mall in Durham. With ATV an outside antenna is a must in most cases and I did not think the Cafeteria people or the mall people would take kindly to me running cable into the cafeteria. The losses associated with long cable runs can also be a problem. I decided that a transportable ATV cross-band repeater would be required for the demo. I had been wanting to experiment with ATV cross-banding and this was my chance.

An ATV cross-band repeater works much like a voice cross-band repeater that most FM dual band mobile radios do these days except that audio and video are transmitted and you can't just go buy one off the shelf. The cross-banding plan was to go like this. The Triangle ATV Association repeater will be received on 421.25 MHz in the parking lot of the mall using a small yagi antenna mounted on a portable 20 ft. mast (another article to write!). My 70cm ATV transceiver will be used to convert 421.25 MHz to channel 3. The channel 3 RF will then be demodulated into audio and video by a PC Electronics channel 3 tuner that runs on 12 volts DC. The audio and video will connect to a 1.2 GHz FM TV transmitter. The 1.2 GHz transmitter will transmit about 2.5W into a mobile mag. mount antenna on top of my truck. This 1.2 GHz signal is what will be received in the cafeteria.

Now, inside the cafeteria would be the following equipment: Another 1.2 GHz mag. mount antenna will feed into a commercial satellite receiver. The satellite receiver demodulates the FM 1.2 GHz signal into audio and video. The audio and video will be connected to a large video monitor so all the people at the meeting can see the picture. That is a lot to go through but it theoretically should work.

Just a one way demonstration was all I had planned but a week or so before the demo I thought it would be neat if I could transmit from the meeting also. Well, that requires even more

equipment. To transmit from the cafeteria a 900 MHz regular AM TV transmitter which I built from a kit will be used. A modified cellular telephone antenna will be the transmit antenna. A video camcorder will serve as a video/audio source. To receive the 900 MHz signal in the parking lot a borrowed Retecon VCR "rabbit" type of downconverter will convert 900 MHz down to channel 3. A Sony TV tuner will demodulate the chan. 3 RF to video and audio. This video and audio will then be connected to the transmitter of my 70 cm ATV transceiver where it will be transmitted on 434.00 MHz to the Triangle ATV repeater. The output of my ATV transceiver is about 1.5 W so I will run that through my Mirage 100W amplifier. The Sony TV tuner and the 900 Mhz downconverter will not run off of 12 VDC so I had to buy a small power inverter to convert 12VDC to 120VAC. The 100 W amplifier will be powered from a LARGE 12V battery.

A picture would make the setup easier to follow but I was not sure it would get reproduced very well so just read the paragraphs again if you did not follow them the first time me. I tested individual components of the system but I never tested the whole system together. I did not have video sensing relay switches to turn transmitters on and off so Joe Simpson, KD4LLV, agreed to man the crossband repeater and control the transmitters. I would be in contact with him on 2 meters from the cafeteria.

I arrived at the mall at about 5:30pm to start setup. That was two hours before the start of the meeting. Plenty of time.....right? That's what I thought. I started setting up the antenna first and that's when I noticed it! The antenna had a broken solder connection and I brought every tool know to man EXCEPT a soldering iron. It had to be a BIG soldering iron too because the piece that broke was a large piece of copper. That's when I decided to beg a soldering iron at the Radio Shack in the mall. I got a few strange looks walking through the mall with a four foot yagi. Luckily the nice folks at Radio Shack had a soldering iron but it was only a 100 W model. After about 20 minutes. of trying I finally got it barely tacked back together. I rushed back to the parking lot where I met up with Joe and we assembled the system.

The next step was to see if I could receive the ATV repeater. I activated the ATV repeater ID screen and I could see the

repeater PS in living color!!! I contacted Nick England, KD4CPL, at his house on 2 meters and asked him to transmit to the ATV repeater. All I could see was flashing horizontal lines across the screen. I tried transmitting to the repeater and all Nick could see was flashing lines. We finally decided that something was wrong with the repeater receiver. Nick only lives about 5 miles from the mall so we decided to go direct. We tried that and we could see each other PS. As a note, a few days later the repeater was OK so it is possible that some other equipment at the repeater site was interfering with the ATV repeater.

OK, the outside was done, now for the inside. I rushed inside and quickly set up that equipment. I few more trips back and forth to the parking lot and I think I had everything working. The meeting was well attended and my presentation on ATV went well. Then the time came for the demo. I instructed Joe to turn everything on outside and for Nick to start his transmission. Nick appeared on the screen in living color with audio. He showed everyone his shack and his impressive collection of Heathkit equipment. He also introduced us to his dog, Morgan. Everyone had a good time watching Nick. Then I tried transmitting from the meeting. Nick could see folks at the meeting!!! At first Nick could not hear audio but I discovered it works better if you plug the audio cable into the transmitter. DAHH!! I panned the camera and Nick identified a few of the people at the meeting. Nick also recorded my video and then played it back to us. By that time it was getting late and the cafeteria was about to close. We quickly disassembled everything and got out of there. I was amazed, but very pleased, that everything worked so well. I think everyone had fun at the meeting. It was a lot of work but I know I had fun!

I would like to thank Woody, KJ4SO; Frank, KA2FWC; David KD4WQU; Sean, KF41VA; and Joe, KD4LLV for loaning some of the equipment for the demo. Special thanks to Joe, KD4LLV; and Nick, KD4CPL for helping make the ATV demo a success.

The Triangle ATV Association repeater is located north of Durham, NC and serves the Raleigh, Durham, Chapel Hill area. The repeater receives on 434.00 MHz and transmits on 421.25 MHz. The repeater has been in operation for about 1.5 years. Future plans include a 1.2 GHz FM input, a tower camera, and a weather radar link. The Association is a small group but we are working to spread the word about ATV and are gaining new members.

CORRECTION

In the SPRING ATVQ article "Cheap and Easy 13 CM" R1 (100 ohm resistor) needs to be removed as well if an MMIC amplifier is added to the ERA-5. See diagram to right.

Bill Parker - W8DMR

<http://www.cris.com/~gharlan>

NEW ATV WEB SITE

Michel Vonlanthen - HB9AFO

A new web site entirely dedicated to ATV can be found at:

<http://www.cmo.ch/swissatv>

You will find a lot of news because we update at a minimum rate of once a week. You will find also news of the ATV Dx-pedition on France-Spain that has established a new world distance ATV record on 10 GHz: 701 kilometers! (with a translation in english by W3HMS).

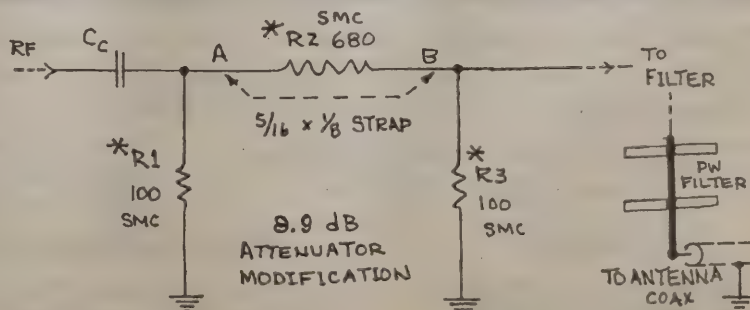
Central Illinois/St. Louis Area Amateur Television Club Banquet November 29, 1997

The Central Illinois/St. Louis Area Amateur Television Club will hold their Eleventh Annual Banquet on November 29, 1997. The event will be held at the Ariston Restaurant in Litchfield, Illinois beginning with happy hour at 5 pm and dinner at 6:30 pm.

After the meal there will be various award presentations to members for their activities during the past year. The Central Illinois/St. Louis Amateur Television Operator of the Year will also be presented at this time.

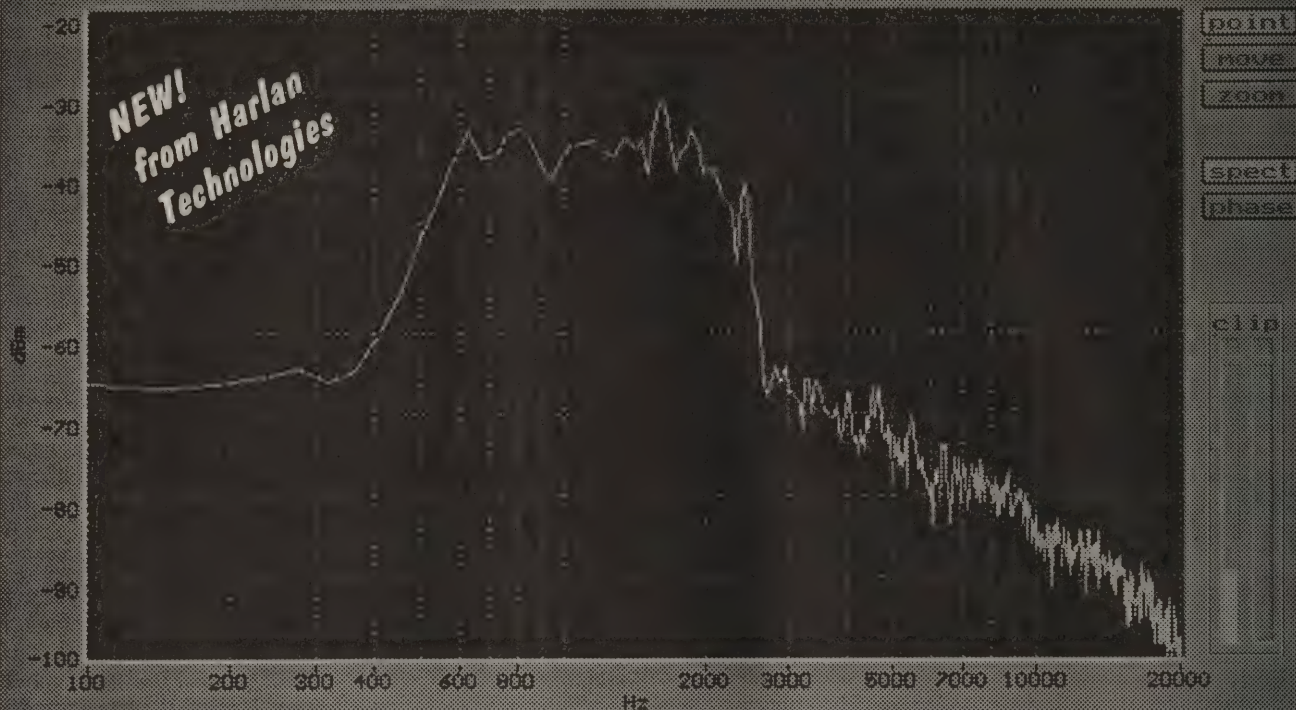
There will be a program and a large prize drawing to complete the evenings activities.

Those active or interested in amateur television are invited to attend and may do so by contacting Scott Millick - K9SM, 907 Big Four Ave., Hillsboro, IL 62049, telephone 217-532-3837, or email to: smillick@cillnet.com. Reservations are required to attend.



* REMOVE R1, R2, R3. ADD JUMPER, A TO B.

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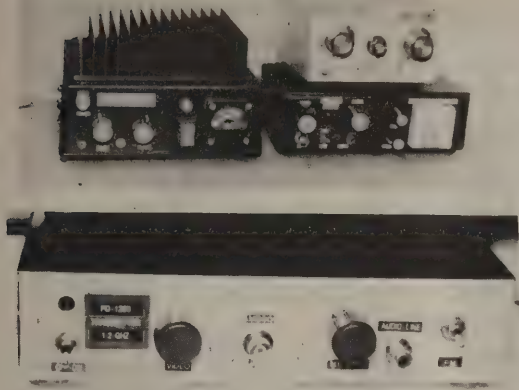
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PD-440N-1	0.5-5w in = 35w out, T/R (linear)	\$149.00
PD-440N-2R	4w in = 55w out, No T/R (linear)	\$199.00
PD-440N-2	0.5w in = 50w out, T/R (linear)	\$285.00
PD-440N-3	3-4w in = 50w out, T/R (linear)	\$225.00
PD-440N-4	3-4w in = 180w P.E.P. (class "A")	\$1200.00

Linear 33cm

PD-33 VLP-1	1mw in = 6w out	\$120.00
PD-33 LP	0.5-1w in = 6-7w out	\$135.00
PD-33 HP	6w in = 18w out	\$149.00
PD-33 LHP	1w in = 18w out	\$265.00
PD-33 LHP-1	1w in = 16w out, T/R	\$305.00

FM 33cm

PD-900N	1w in = 8-10w out	\$65.00
PD-900N-1	1w in = 20-24 w out	\$143.00

Power Amplifier 1.2 GHz, Linear

PD-1200N	1w in = 18w out	\$169.00
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PD-1200N-1A	1w in = 36w out	\$375.00
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PD-1200N-5	10mw in = 18w out	\$295.00

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Stable saw technology, Available on 906,913,916,50,924 MHz your choice.	
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Provisions for 2 XTAL's. 1 included-916 MHz	
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Provisions for 2 XTAL's. 1 included-1.265 GHz	
R.F. phase lock loop and amp sync level adjustment	
Subcarrier audio 4.5-6.9 MHz video and audio controls	

Preamplifiers

420-450Mhz specs: (Choice of BNC or "N" connectors)

PD-440S	Single gate	MGF1302 transistor	
	Noise Figure = 0.5db	Gain = 16db	\$56.00
PD-440S-1	Single gate	Noise Figure = 0.38db	
	MGF1302 transistor	Gain = 17db	
	12-13.8 volts required.	Voltage regulated (5v)	
	Toroid coil is in output with capacitor coupling at output		
	Input uses a high "Q" piston trimmer.		\$90.00

902-928 Mhz specs: (choice of BNC, "N", or SMA connectors)

PD-900	Single gate	Low noise	
	0.5 db Noise Figure	MGF 1302 GaAs FET Transistor	
	Gain = 15 - 16 db	Piston type trimmer capacitor	
	High "Q" trim pot	Voltage regulated (5v)	
	Fixed inductor, capacitor isolated output.		\$89.00

TPD-900TM	Tower Mount with "N" connectors	\$96.00
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1240-1296Mhz specs: (Choice of BNC, "N", or SMA connectors)

PD-1200	(Other specs. Available upon request)	
	HEMT Device	Low noise
	0.5 db Noise Figure	Gain = 15db
	Voltage regulated	
		\$89.00

TPD-1200TM	Tower mount with "N" connectors	\$96.00
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2.3 Ghz Specs: (Choice of BNC, "N", or SMA connectors)

TPD-2300	3 stages	low noise	
	Gain = 17 db		
	Write or call for specs. and layout.		\$140.00

Video line samplers

70cm - 33cm		
Video output	PD-VD-1	\$79.00
Video and R.F. output	PD-VD-1A	\$96.00

Call or write for 18 page cataloge.

W6ORGy Notes

By Tom O'Hara W6ORG

There are many combinations that one can do to build an ATV repeater. You first need to pick a band or bands that your primary system will operate on. Will it be inband or crossband? What will the coverage area be given the band, antenna gains and transmitter power given line of sight?

First the band. The lower the frequency, the farther the distance or power required to go a fixed distance. The 902-928 MHz band gives half the distance for the same signal strength given the same transmitter power and antenna gains as 420-450 MHz. But the upper bands are fine if your normal line of sight distance is within the radius and you want to get away from a crowded lower band or there is already an ATV repeater there.

Crossband repeaters have the advantage of users being able to see their own video while transmitting with just 10 ft or so antenna spacing. Low band in and high out is easier and lowercost to the users. Getting transmit power is more money at higher frequencies, losses in coax is higher and it is more practical to mount a receiving preamp if necessary than a transmit amp at the antenna at higher frequencies. The transmit distance vs the receive distance works out about equal if the higher band makes up for the path loss with an antenna mounted preamp and higher gain beams at the users location. But again you can go high in and low out if within the radius. A low out crossband repeater can make newcomers getting the bug by tuning in with a cable ready TV.

Line of sight distance is the only easily predictable distance. So placing the repeater at the highest point you can above the average terrain is paramount. The RF horizon in miles is approximately 2 times the square root of the height. ie. 50 ft = 10 miles, 1000 ft = 33.3 miles. Therefore a repeater on a 1000 ft above the terrain could see a home QTH 43 miles away.

The 70cm 420-450 MHz distance miles are in the order of 1/15/50/80 Watts.

	XMIT. 4 dBd	8 dBd	10 dBd	14.5 dBd
	AEA	KLM	DB prod.	KLM
	ISPOLE	440-6X	DB420	440-16X
REC.				
ISPOLE	2/9/14/18	3/13/21/27	4/17/28/36	6/26/42/55
440-6X	3/13/21/27	5/22/35/45	6/26/42*/55	10/44/70/91
DB420	4/17/28/36	6/26/42/55	8/35/56/73	13/57/91/118
440-16X	6/26/42/55	10/44/70/91	13/57/91/118	22/97/154/200

1240-1300 MHz Snow free line of sight Miles per 1/18/35/100 Watts

	XMIT.	0 dBd	omni	beam
		Dipole	10 dBd	16.3 dBd
			Diamond F1230	2424LYRM
REC.				
Dipole		.4/1.6/2.5/4	1/4/6/10	2/8/11/20
Diamond F1230		1/4/6/10	2.3/10/14/24	5/20/28/50
2424LYRM		2/8/11/20	5/20/*28/50	10/42/59/100

REPEATER EQUIPMENT SOURCES

Diamond and Comet Antennas
70, 33 & 23 cm beams & vertical omnis
P.C. Electronics (818) 447-4565

Communications Specialists
ID-8 and DTD-1
P. C. Electronics (818) 447-4565

CMC- Sinclair - 70 cm antennas
7020 Hayvenhurst Ave #E
Van Nuys CA 91406
(818) 994-4455

DB Products - antennas
POB 569610, Dallas TX 75356
(214) 631-0310

DCI - 70, 33 and 23 cm VSB filters
PC Electronics (818) 447-4565 or
Box 293, 29 Hummingbird Bay
White City, SK, Canada S0G 5B0
(800) 563-5351 dci@dc1.ca

Elktrons - video ID
12536 T.77, Findlay OH 45840
(419) 422-8206

HERD Elect. Rib-Cage Slot Horz. omni
2596 Church Rd, York PA 17404
(717) 764-4805

HI-Spec - 100W 33 & 23cm ampsPOB
387, Jupiter FL 33468
(407) 746-5031

Lindsay antennas - TZU antenna
50 Mary St.
Lindsay Ontario Canada K9V 4S7
(705) 324-2196

Mini-Circuits Lab - NLP-550 low pass
(800) 214-6428 Ext 606

Motron - AK-16 DTMF Decoder
POB 2748, Eugene OR 97402
(541) 687-2118

Olde Antenna Lab - Horiz. Big Wheels
6224 S. Prince St., Littleton CO 80120
(303) 798-5926

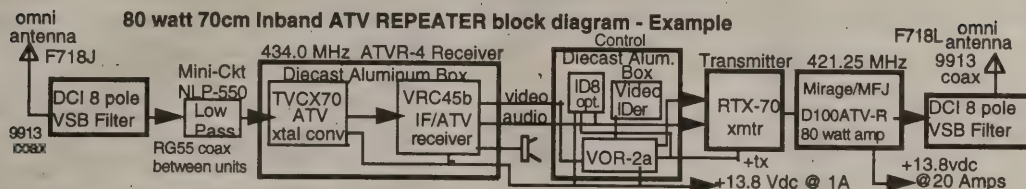
P.C. Electronics - xmtr, rcvr, ant, etc.
2522 Paxson Ln, Arcadia CA 91007
(626) 447-4565, fax (626) 447-4565
tomsmb@aol.com www.hamtv.com

Spectrum International - filters
POB 1084, Concord MA 01742
(508) 263-2145

Telewave - 70 cm antennas
1155 Terra Bella
Mountain View CA 94043
(415) 968-4400

TX-RX Systems - VSB duplexers
8625 Industrial Parkway
Angola NY 14006
(716) 5494700

ATV Repeater Cost Examples

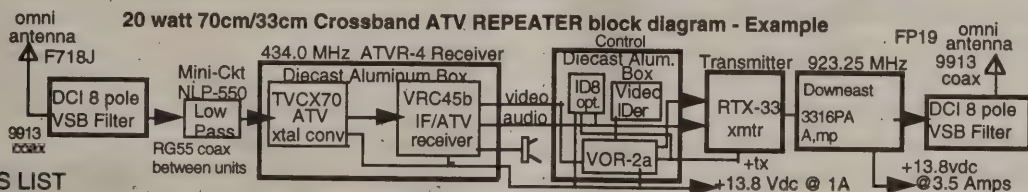


PARTS LIST

Description	Model #	Manufacturer	Source	Cost
Antenna 430-440 MHz	F718J	Diamond	P. C. Electronics	\$238
Antenna 420-430 MHz	F718L	Diamond	P. C. Electronics	\$238
ATV Receiver 70cm	ATVR-4	P. C. Electronics	P. C. Electronics	\$319
ATV Transmitter 70cm	RTX-70	P. C. Electronics	P. C. Electronics	\$279
Video Operated Relay board	VOR-2a	P. C. Electronics	P. C. Electronics	\$45
80W (100 w pep) Linear Amp	D100ATVR	MFJ/Mirage	AES	\$589
70cm VSB filter 421.25 MHz	DCI-421.25-6C	DCI	P. C. Electronics	\$279
70cm VSB filter 434.0 MHz	DCI-434.0-6C	DCI	P. C. Electronics	\$279
MCW call IDer board (optional)	ID-8	Comm. Specialists	P. C. Electronics	\$89
Die Cast Aluminum box	CAB 247	LMB Heeger	P. C. Electronics	\$22
Low Pass inline filter	NLP-550	MiniCircuit Lab	MiniCircuit Lab	\$40
Power Supply 13.8 Vdc @ 2.5A	RS 22-504	Radio Shack	Radio Shack	\$39.99
Power Supply 13.8 Vdc @ 20A	RS-20M	Astron	AES	\$119.95
50 Ohm Coax Cable, 250 ft roll	9913	Belden	AES	\$129.95
Video Identifier (optional)	VDG-1	Elktronics	Elktronics	\$99
Total				\$2805.89

You could substitute a Mirage D26N in place of the D100ATVR for 50 watts out and save \$340. A fan must be added to the D26N to blow air over the heatsink fins.

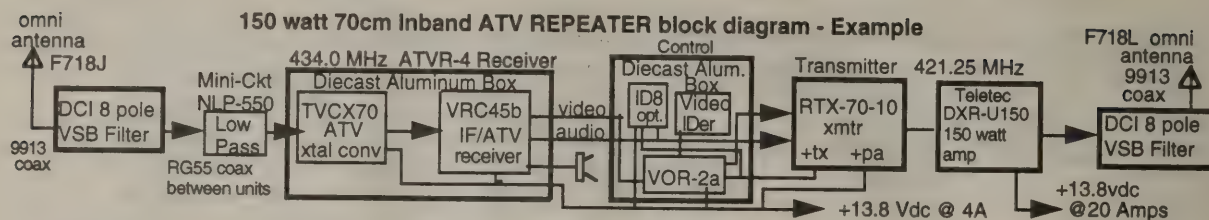
Add about \$200 for a DTMF controller, miscellaneous hardware, interconnect cables and connectors.



PARTS LIST

Description	Model #	Manufacturer	Source	Cost
Antenna 430-440 MHz	F718J	Diamond	P. C. Electronics	\$238
Antenna 902-928 MHz	FP-19	Comet	P. C. Electronics	\$119
ATV Receiver 70cm	ATVR-4	P. C. Electronics	P. C. Electronics	\$319
ATV Transmitter 33cm	RTX-33	P. C. Electronics	P. C. Electronics	\$329
Video Operated Relay board	VOR-2a	P. C. Electronics	P. C. Electronics	\$45
20W 33cm Linear Amp	3318PA	Downeast Micro.	Downeast Microwave	\$275
70cm VSB filter 434.0 MHz	DCI-434.0-6C	DCI	P. C. Electronics	\$279
33cm VSB filter 923.25 MHz	DCI-923.25-6C	DCI	P. C. Electronics	\$279
MCW call IDer board (optional)	ID-8	Comm. Specialists	P. C. Electronics	\$89
Die Cast Aluminum box	CAB 247	LMB Heeger	P. C. Electronics	\$22
Low Pass inline filter	NLP-550	MiniCircuit Lab	MiniCircuit Lab	\$40
Power Supply 13.8 Vdc @ 2.5A	RS 22-504	Radio Shack	Radio Shack	\$39.99
Power Supply 13.8 Vdc @ 7A	RS-7A	Astron	AES	\$59.95
50 Ohm Coax Cable, 250 ft roll	9913	Belden	AES	\$129.95
Video Identifier (optional)	VDG-1	Elktronics	Elktronics	\$99
Total				\$2362.85

11/97

Inband 420-450 MHz ATV Repeater Cost Examples cont.**PARTS LIST**

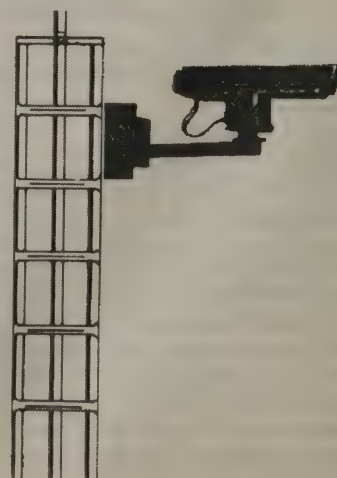
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Antenna 430-440 MHz	F718J	Diamond	P. C. Electronics	\$238
Antenna 420-430 MHz	F718L	Diamond	P. C. Electronics	\$238
ATV Receiver 70cm	ATVR-4	P. C. Electronics	P. C. Electronics	\$319
ATV Transmitter 70cm	RTX-70-10	P. C. Electronics	P. C. Electronics	\$439
Video Operated Relay board	VOR-2a	P. C. Electronics	P. C. Electronics	\$45
150 w pep Linear Amp	DXR-U150	Teletec	P. C. Electronics	\$789
70cm VSB filter 421.25 MHz	DCI-421.25-6C	DCI	P. C. Electronics	\$279
70cm VSB filter 434.0 MHz	DCI-434.0-6C	DCI	P. C. Electronics	\$279
MCW call IDer board (optional)	ID-8	Comm. Specialists	P. C. Electronics	\$89
Die Cast Aluminum box	CAB 247	LMB Heeger	P. C. Electronics	\$22
Low Pass inline filter	NLP-550	MiniCircuit Lab	MiniCircuit Lab	\$40
Power Supply 13.8 Vdc @ 5A	RS-7A	Astron	AES	\$59.99
Power Supply 13.8 Vdc @ 20A	RS-20M	Astron	AES	\$119.95
50 Ohm Coax Cable, 250 ft roll	9913	Belden	AES	\$129.95
Video Identifier (optional)	VDG-1	Elktronics	Elktronics	\$99
Total				\$3185.89

See Source list on for phone numbers and addresses.

Remote Tower Mounted Pan and Tilt Camera

A camera at the repeater site can show the sky line, local weather conditions, approaching storms, site intruders, broken antennas and cables, etc. The camera pan and tilt can be controlled by a Motron AK-16 DTMF decoder from a receiver audio line - be it the repeater receivers sound subcarrier or control receiver. Most pan and tilts run off of 24VAC and can be controlled by the DTMF decoder through relays. If the decoder is mounted in the weather proof enclosure with the camera all you need to run up the tower is an audio tone control line, camera video coax and 24VAC. 12 VDC for the camera and decoder can be recified and filtered from the 24 VAC. Some run the camera video through a GVID video IDer and use the tower video as the normal repeater ID source. Otherwise another DTMF decoder must be used to switch the video sources to the transmitter.

ATV Research has the Pelco line of outdoor pan and tilt systems and weather proof camera housings. For their catalogue of these items and cameras call 1-800-392-3922 or see their web site www.atvresearch.com



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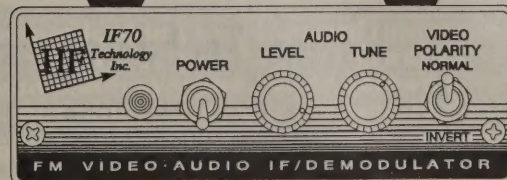
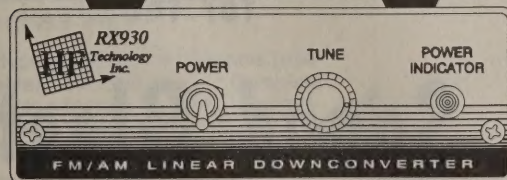
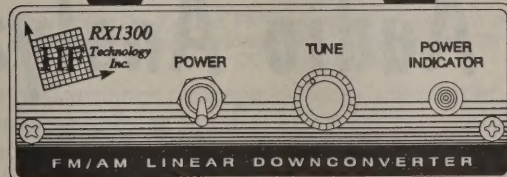
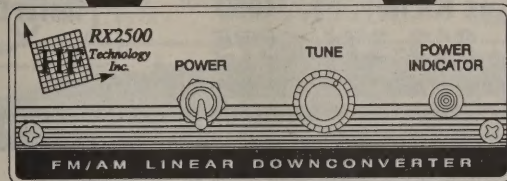
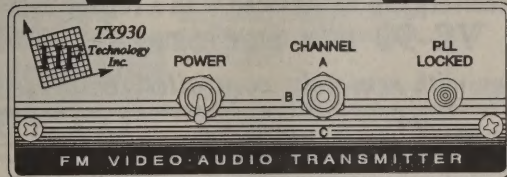
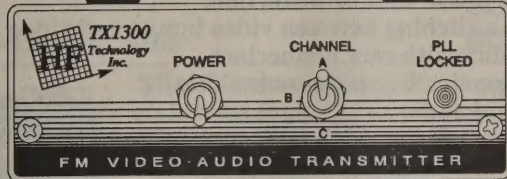
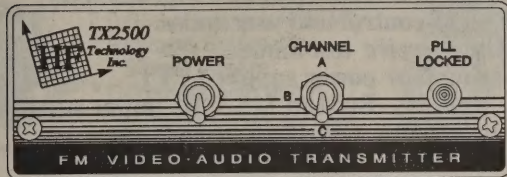
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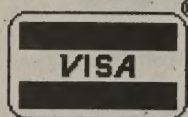
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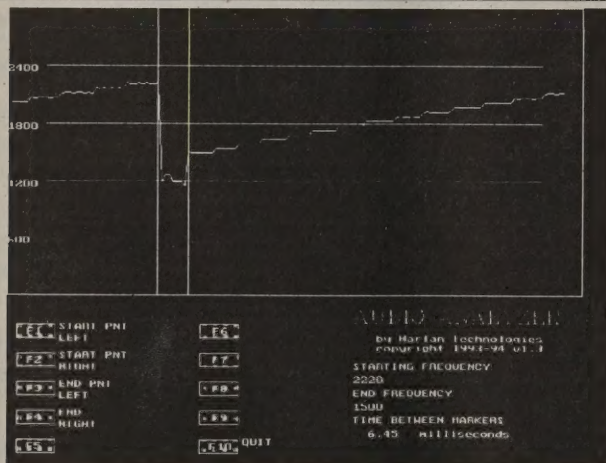
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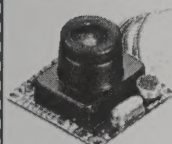
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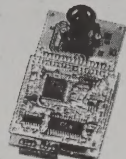
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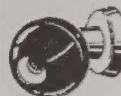
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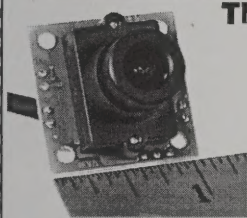
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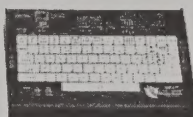
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The WaveCom Jr. 2.4Ghz FM transmission system comes complete with directional circular polarized antennas. Ideal for satellite, VCR's, CCTV, ATV, etc.

Super performance package includes transmitter, receiver, antennas and power supplies! Great for a multitude of around-the-shack applications as well as can be easily modified for ATV applications as per SPRING '97 issue of ATVQ.

* FCC type approved * 4 channels (user selectable) * 300-500' range * Complete with power adaptors * Includes discrete stereo audio * outperforms older 900 Mhz AM systems



Model WC-300

\$120



If you are looking for standard or special purpose cameras, monitors, time-lapse recorders, telephone video transmission systems, quad screen splitters, etc., etc., etc...our sales staff are waiting to assist.

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Two-tone painted case: Black 18 ga. hammertone steel cover with grey aluminum base. Rubber feet. Side vents. Cowl cover. Excellent for many video and other electronic projects.
Size: 3-1/4" x 2-3/16" x 4-1/2"



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5 for \$15

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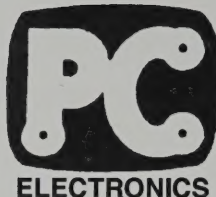
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TC70-10 ATV TRANSCIVER



VALUE PLUS
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Total price shipped
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Get the ATV Bug !
All in one box

420-450 MHz BAND
 RUGGED
 RELIABLE
 IN STOCK

≥10 Watts
 p.e.p. Output
 -Adjustable, 2 to 14
 watts pep Typical

Made in USA

TC70-10 Transceiver lets you get on ATV right away with all the power most will need in one box - *90 Miles line of sight DX

ATV is no more difficult or different than any voice mode except that you also plug in your camcorder to transmit, and your TV set to receive the picture. That's it - you're seeing as well as talking to other hams live and in color! No other radios needed.

You can show the shack, home video tapes, zoom in and describe projects, show computer graphics and programs, repeat SSTV or even Space Shuttle Video and audio if you have a TVRO. Go portable or mobile, do public service events, RACES, AREC, CAP, even transmit the radio club meetings to those hams that can't make it.

*DX is up to 90 miles snow free line of sight between 14 dBd beams and using 100 ft. of Belden 9913 low loss coax simplex. Check the ARRL Repeater Directory for ATV repeaters near you or call us for info on other ATVers in your area to find out frequencies, antenna polarization and activities.

Transmitting equipment sold only to licensed Tech class or higher Radio Amateurs, verified in the Callbook or on the web, and used for legal purposes per 47 CFR part 97 of the FCC Rules.

- * Adjustable peak envelope power RF output
 Typical range from 2 to 14W and sync stretcher allows proper adjustment to fully drive the RF Concepts 4-110 to full 100 Watts p.e.p., or more with Teletec amp without sync or audio clipping.
- * Separate mic and line audio volume controls
 Allows voice over commenting when showing video tapes. Mini jack for low Z dynamic mic & submini PTL (push to lock).
- * Rugged 7.5 x 7.5 x 2.7" black die cast alum. box
 Continuous duty for public service applications. Takes up less space on the operating table than 1 Watt plus amp. 3.5 lbs.
- * True Final RF detected video monitor output
 If you have a video monitor, it lets you set the video gain control for actual white level. Camera video is at this phono jack during receive for focus & lighting set up before transmitting. Also on rear panel is a type N antenna jack and type F jack to the TV set. Sensitive 1 dB NF GaAsfet downconverter tunes whole 420-450 MHz 70cm band down to your TV channel 2, 3 or 4. Front panel phono jacks accept composite video and line audio from your camcorder or VCR. One crystal included; specify 439.25, 434.0, 427.25 or 426.25 - F1. 2nd switch selectable crystal, F2, add \$20. Requires 12-14 Vdc @ 3 Amps. 100% duty cycle.

COMPLETE 420-450 MHz 70cm BAND ATV STATION



Your TV set

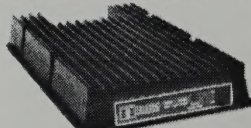


TC70-10....\$499

ATV Transceiver

10 Watts p.e.p. min.

Downconverter tunes 420-450 MHz
 Req. 12-14 Vdc @ 3A power supply
 Specify transmit frequency(s):
 439.25, 434.0, 427.25 or 426.25 MHz



New Teletec 150W amp

Optional 100-150 Watt Amplifiers
 RF Concepts 4-110 100W pep.....\$359
 Teletec DXP-U150 150W pep.....\$429
 *15W pep from a TC70-10 got 142W pep
 Amps require their own 13.8 Vdc
 25 Amp regulated power supply and
 external fan for key down >5 minutes.



Antennas - see catalogue page 5
 Dir. Sys. DSFO ATV-25 16 dBd \$149
 KLM440-16X Yagi ctr mtg 14 dBd \$142
 KLM440-10X Yagi end mtg 11 dBd \$82
 KLM440-6X Yagi end mtg 8.9 dBd \$65
 Diamond F718x Vert omni 9 dBd \$238
 Diamond NR-770H mob/port 5.5dBd \$59



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